# SUNDE®

## User's Manual
## For vPoint2.1

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Thank you for purchasing Diana2 cloud terminal from SUNDE by Huiyuan Co., Ltd. Please refer to this manual for the installation of vPoint 2.1 software and setting-up of Diana2 terminal.

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# Chapter 1 What' New about vPoint2.1 and Requirements on Host Server Hardware

## 1.1 What's New about vPoint2.1?

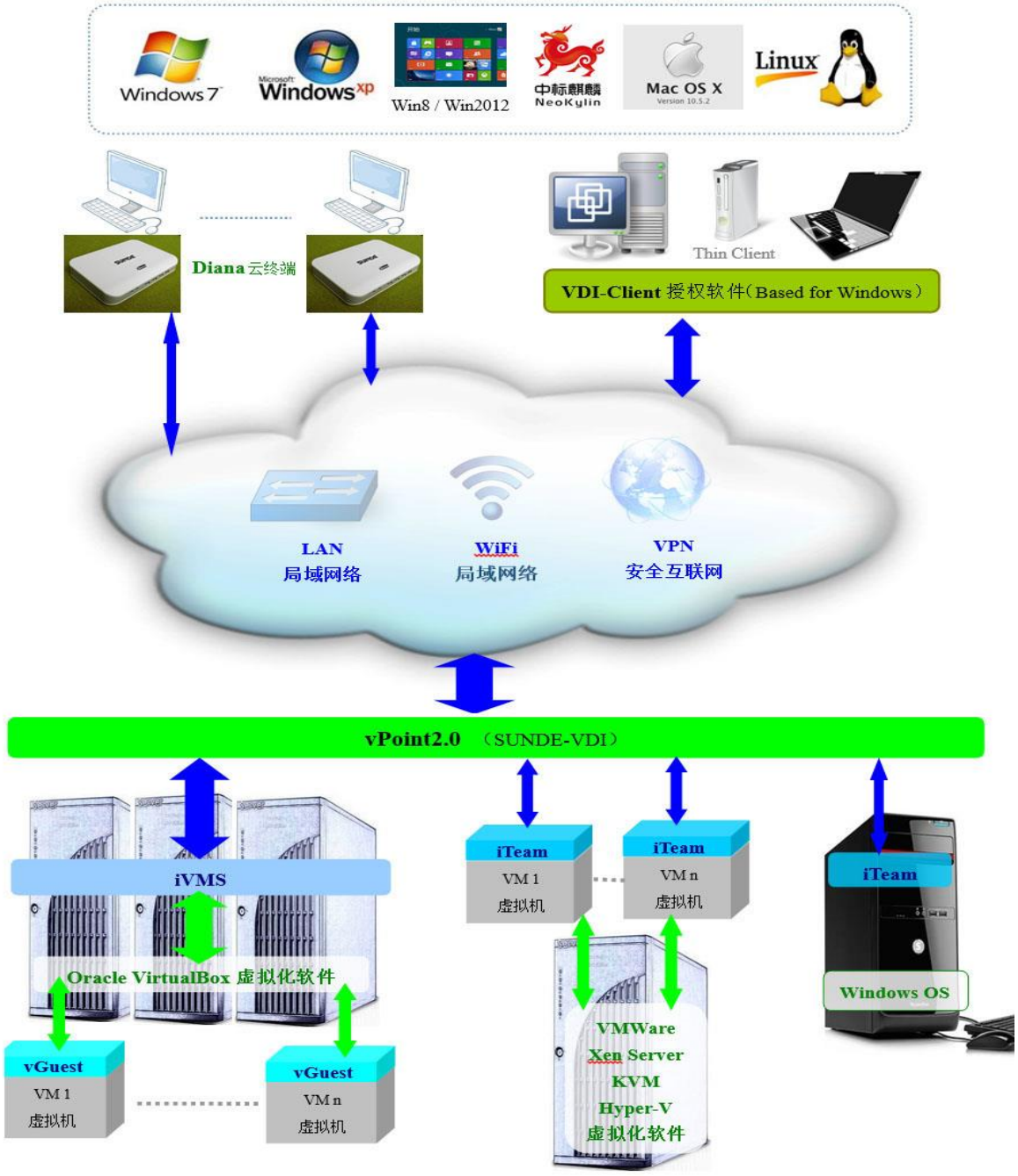
Compared to earlier vPoint1.0 (single host server version, using VirtualBox 4.2.8), vPoint2.1 Server supports multiple VM host servers, which means you do not need to install vPoint2.1 Server on each VM host server except one. And you can even install vPoint Server on a small server with no virtualization capability, running no virtual machines – in this configuration, a sudden shutdown of vPoint Server will not affect the working status of Diana devices which are connecting to host servers already.

What's more, vPoint2.1 uses a WebConsole to do its job. This web console can be accessed from any pc station through a browser by typing in vPoint2.1 server address in this format: *https://192.168.1.88* *(Here IP address 192.168.1.88 is just for example. Type in your actual vPoint Server instead).*

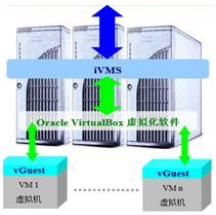
vPoint 1.0 can only support virtualization software virtualbox, so users using virtualization software like VMware, XenServer, Hyper-V, KVM, etc., could not enjoy the fantastic experience brought by Diana. Now vPoint2.1 has changed that. By installing a special part called "iTeam" in the OS of the VM created by VMware, XenServer, Hyper-V or KVM, a Diana user can connect to the VM same way as he/she connects to a VirtualBox VM, with same PC-like user experience.

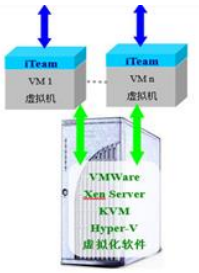
We have a separate User Manual for iTeam of vPoint2.1 which can be downloaded from our website.

## 1.2 Typical Network Construction of vPoint2.1




**Picture 1**

As shown in Picture 1,  part indicates using VirtualBox as the virtualization software. In the server group, there should be at least on vPoint Server installed to take care of connection broker and accounts management job.



part indicates how iTeam works with VMs created by other virtualiztion software like VMware, XenServer, KVM, Hyper-V, etc.. Users only need to install iTeam into the Windows OS of the VMs. Nothing need to be changed to their virtualization platforms. See iTeam User Manual for more details.

part indicates how iTeam turns a PC/workstation/notebook and similar products into virtual desktops that can be used by Diana users. This is very useful for some art design companies who what to have better security on their design works. For example, the CAD workstation can be locked in the computer lab (or datacenter), designers connected to the workstation with Diana devices. The system can prevent Diana users to copy any data from the workstation.

The VDI-Client as shown in Picture 1 is another new product by SUNDE. VDI-Client is the software version of Diana. A PC/Notebook installed with VDI-Client can connect to a virtual desktop provided by vPoint2.1 same as a Diana device. VDI-Client is not a free software. Users need to pay for it.

## 1.3 Requirements on Host Server Hardware Configuration

The Host server shall be able to run 64bit version Windows 2008 and its CPU shall support virtualization (VT for INTEL, AMD-V for AMD). The size of RAM is decided by the numbers of virtual machines to be created on the Host PC (Server). For a 10 virtual machines host, If 512Mb to 1024Mb memory is going to be assigned for each virtual machine, an amount of 8Gb to 12Gb RAM in total shall be installed on the Host PC (Server). SSD (Solid State Drive) is recommended for faster storage if the number of virtual machines to be created is above 5. SSD (Solid State Drive) is a perfect choice for housing virtual machines for higher performance.

## Chapter 2 Install vPoint2.1 on Host Servers

Before installing vPoint2.1, 64bit operation system (namely 64bit version of Windows 7, Windows 8, Windows 2008R2 or Windows 2012) shall have been already installed on the Host Server. For host server OS, Windows 2008R2 64 bit version is highly recommended.

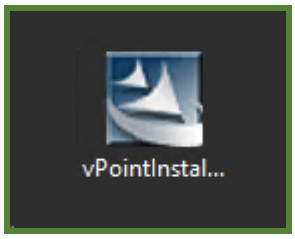
**OS supported by Diana**

| Host Server OS | VM OS |
|---|---|
| Windows 7 all 64bit version | All Windows OS Supported by VirtualBox |
| Windows 2008R2 all 64bit version | All Linux OS Supported by VirtualBox |
| Windows 8 all 64bit version | All other (MAC, Android) OS by VirtualBox |
| Windows 2012 all 64bit version | |

**There are 3 types of installation of vPoint2.1 to meet various actual users situation. Now we will introduce them one by one.**

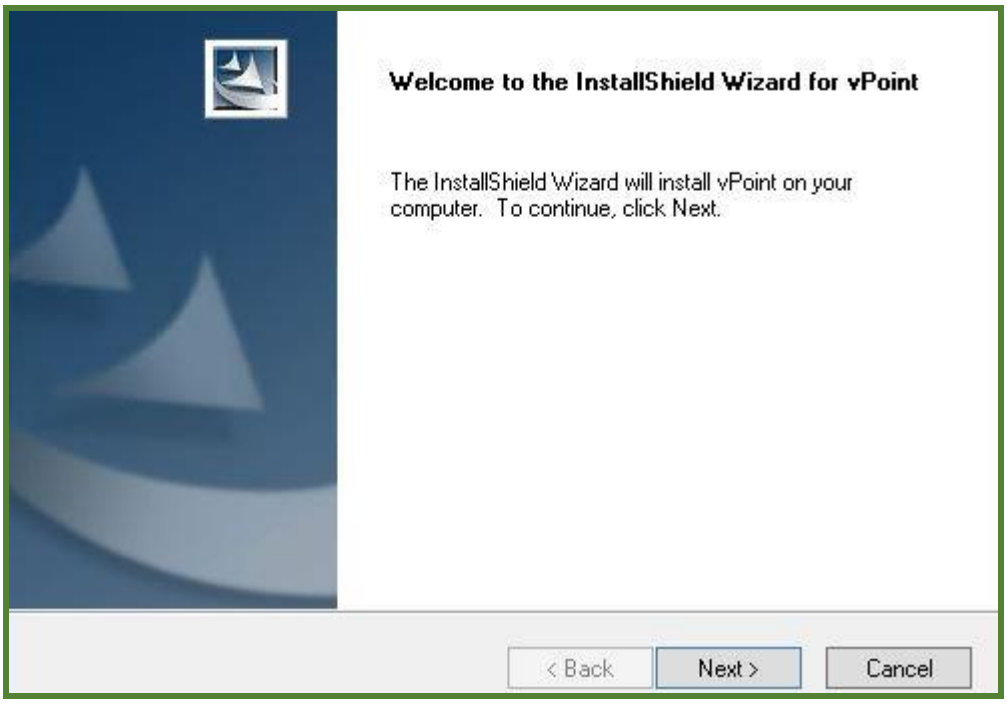
### 2.1 Only install the Server part (the WebConsole and Connection broker) – for server not to be used as VM host. Here are the steps:

Double click on “vPointInstallationPackage”. See Picture 2:



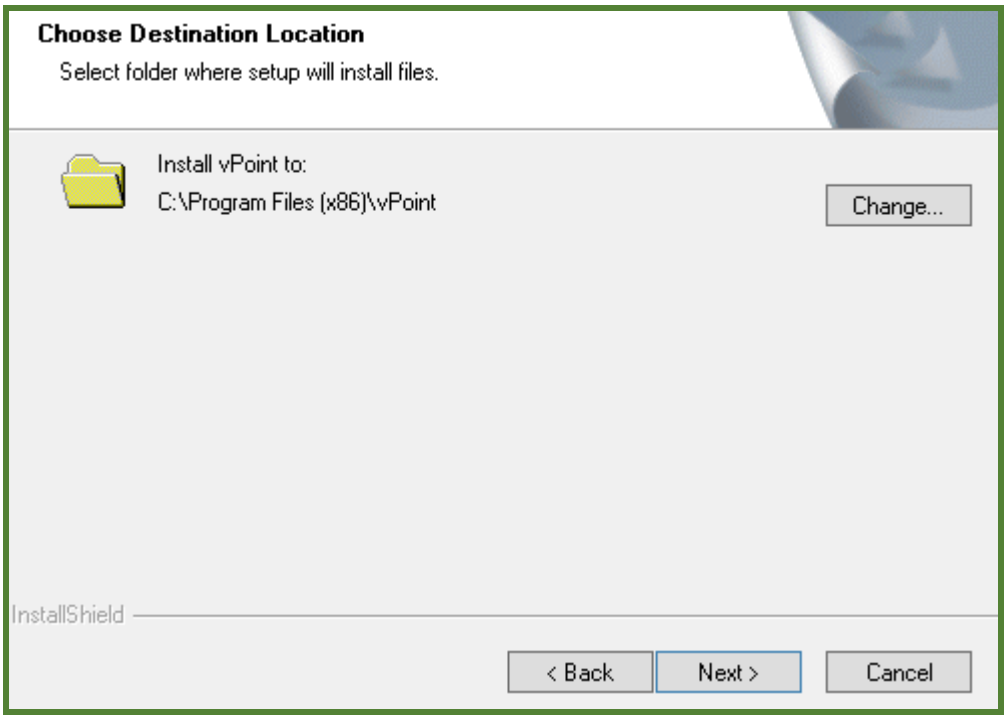

Picture 2

Click on “Next” to continue. Picture 3:


Welcome to the InstallShield Wizard for vPoint
The InstallShield Wizard will install vPoint on your computer. To continue, click Next.
< Back
Next >
Cancel

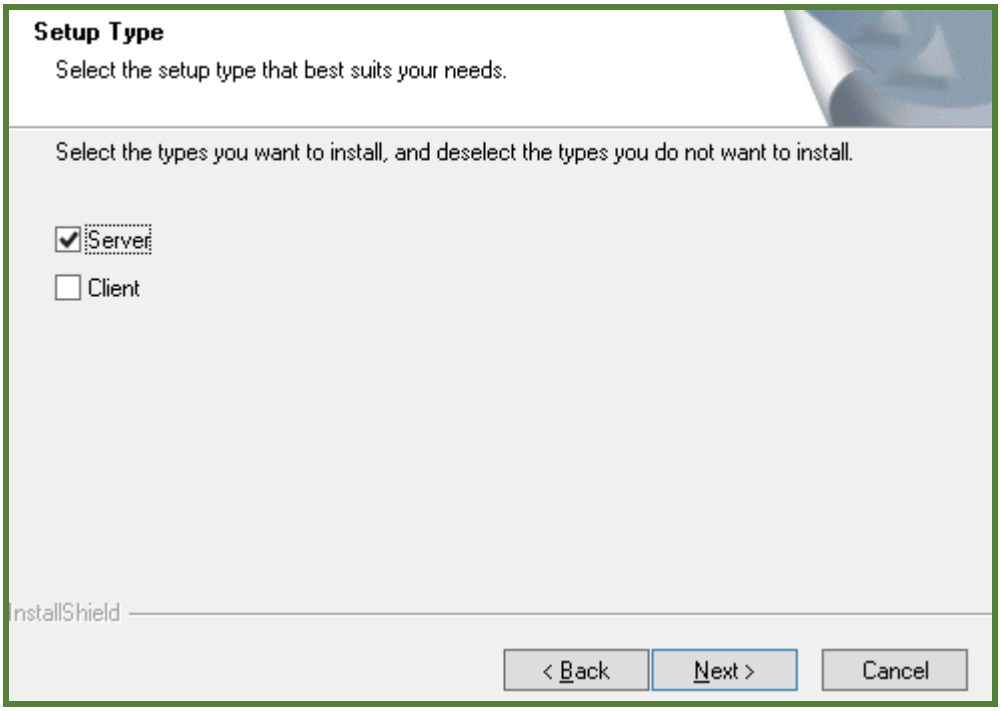
Picture 3

Choose “Destination Location”. We can use the default. Picture 4:



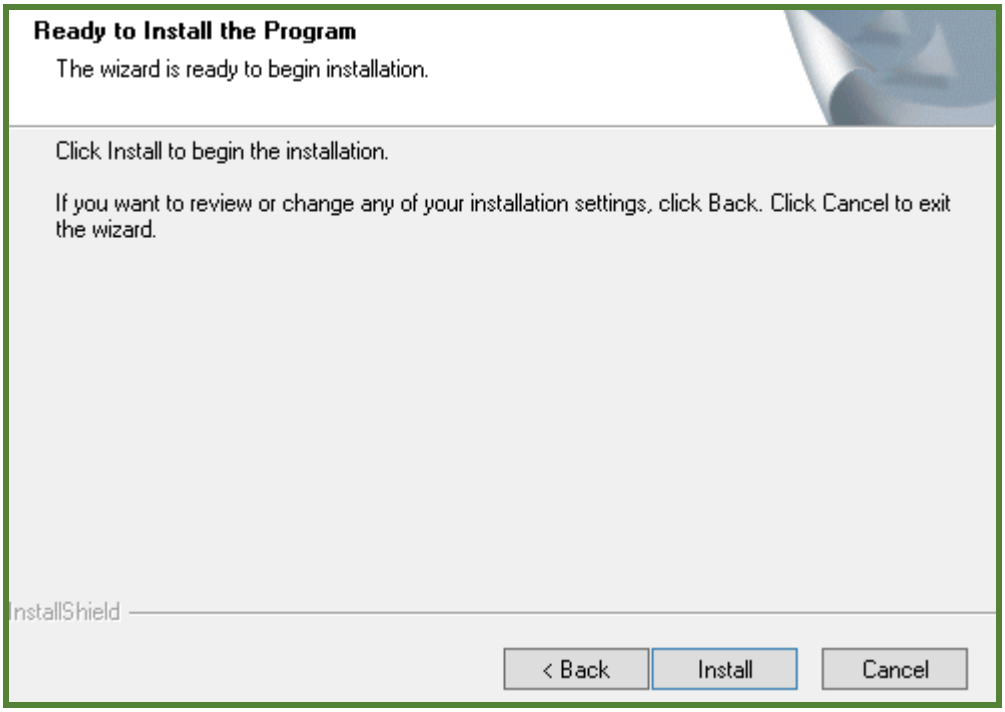

Picture 4

Select “Server” only. Then continue with “Next” . Picture 5:


Setup Type
Select the setup type that best suits your needs.
Select the types you want to install, and deselect the types you do not want to install.
Server
Client
InstallShield
< Back
Next >
Cancel

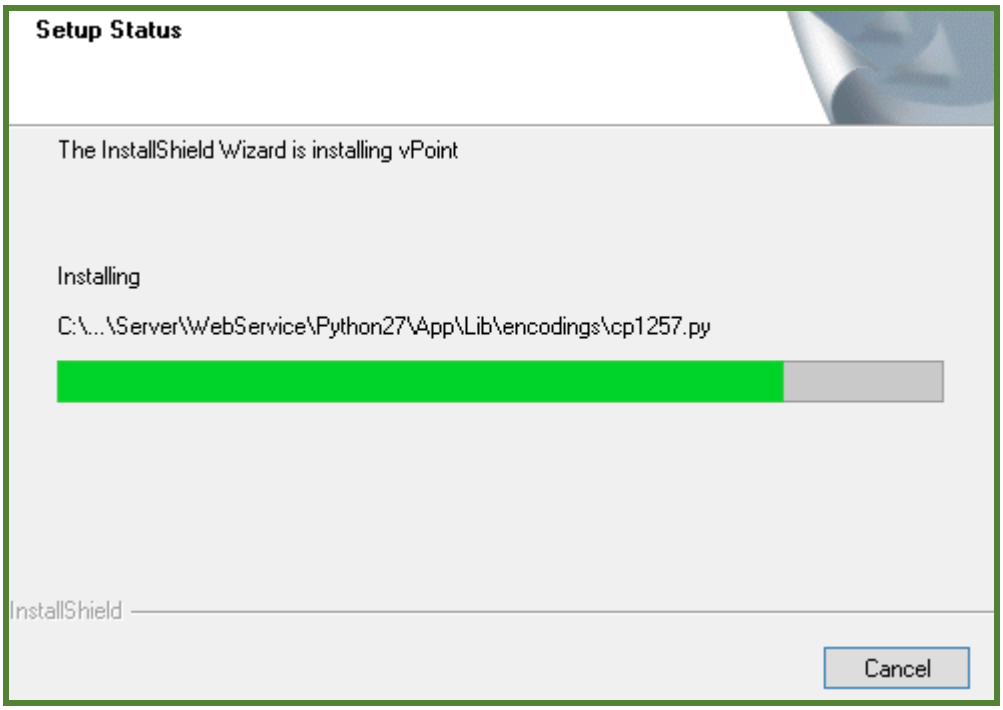
Picture 5

Click on “Install” to start the installation. Picture 6:


Ready to Install the Program
The wizard is ready to begin installation.
Click Install to begin the installation.
If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.
InstallShield
< Back
Install
Cancel

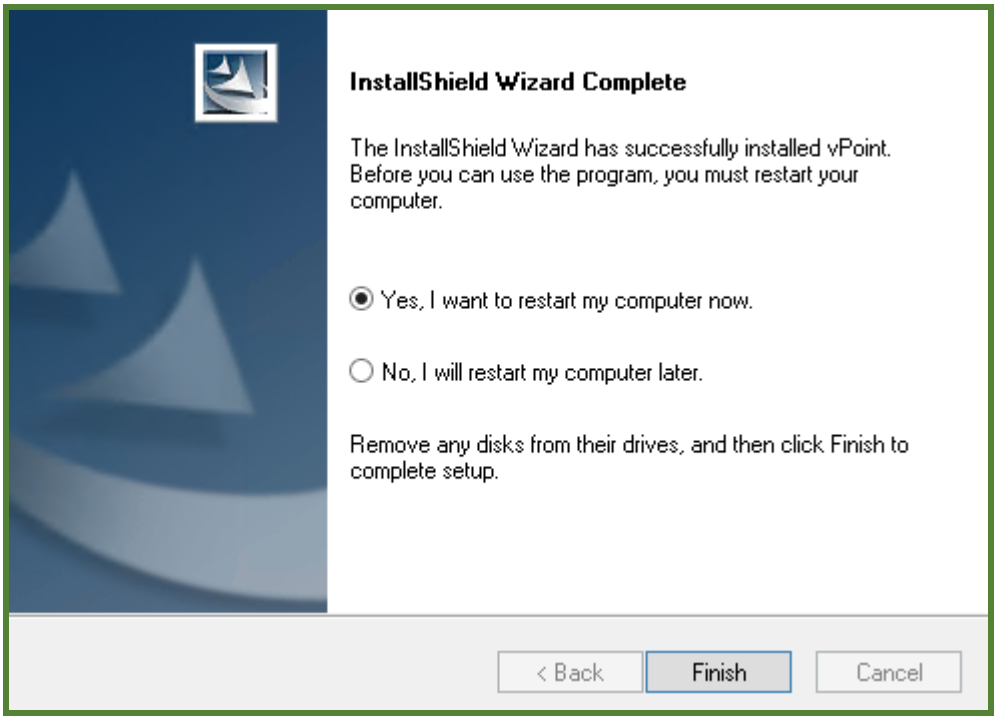
Picture 6

Installing:




Picture 7

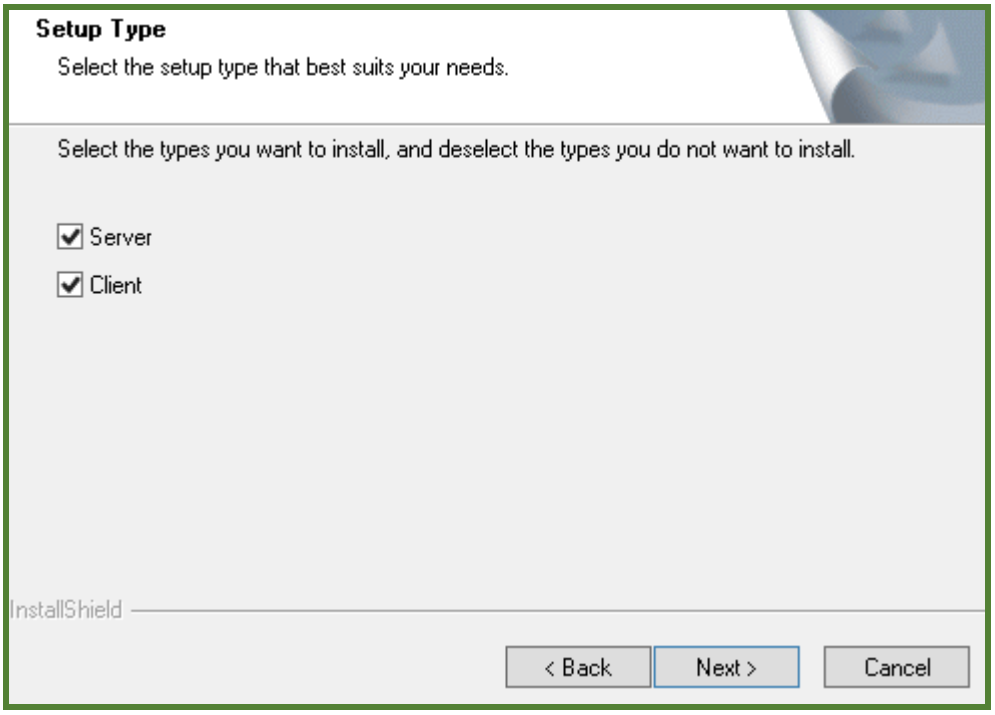
When it finishes, click on “Finish” to restart the server:


InstallShield Wizard Complete
The InstallShield Wizard has successfully installed vPoint. Before you can use the program, you must restart your computer.
Yes, I want to restart my computer now.
No, I will restart my computer later.
Remove any disks from their drives, and then click Finish to complete setup.
< Back
Finish
Cancel

Picture 8

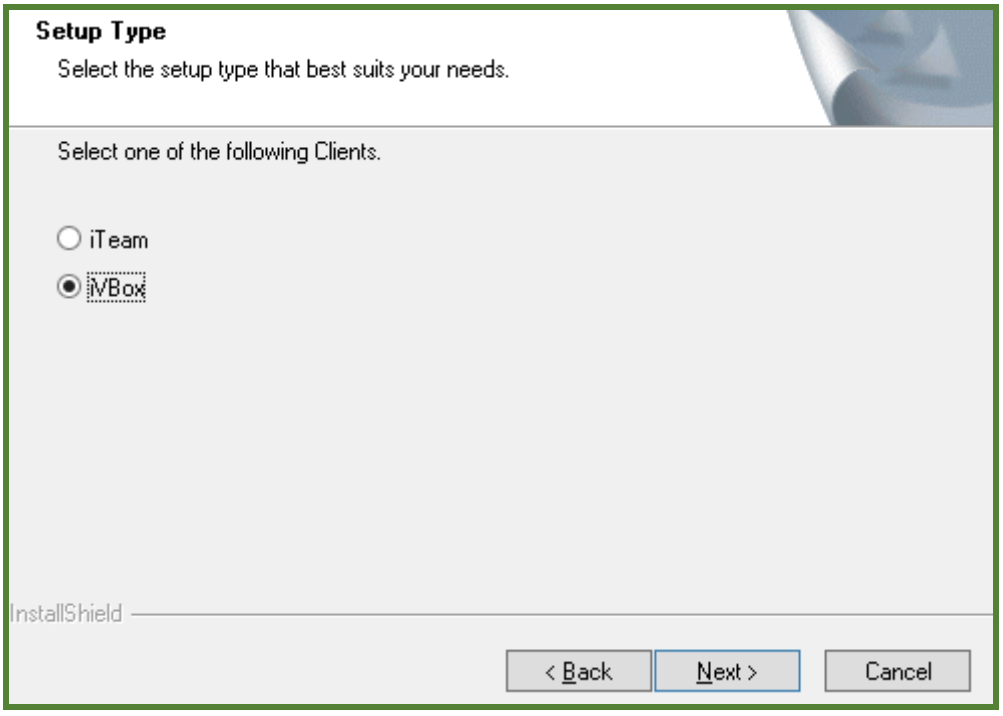
### 2.2 Install both the Server and the Client. This is for server that is intended for both vPoint Server and VM host. Here are the steps:

Run the installation with initial steps same as 2.1 till this windows comes up. Choose both "Server" and "Client":


Setup Type
Select the setup type that best suits your needs.
Select the types you want to install, and deselect the types you do not want to install.
Server
Client
InstallShield
< Back
Next >
Cancel

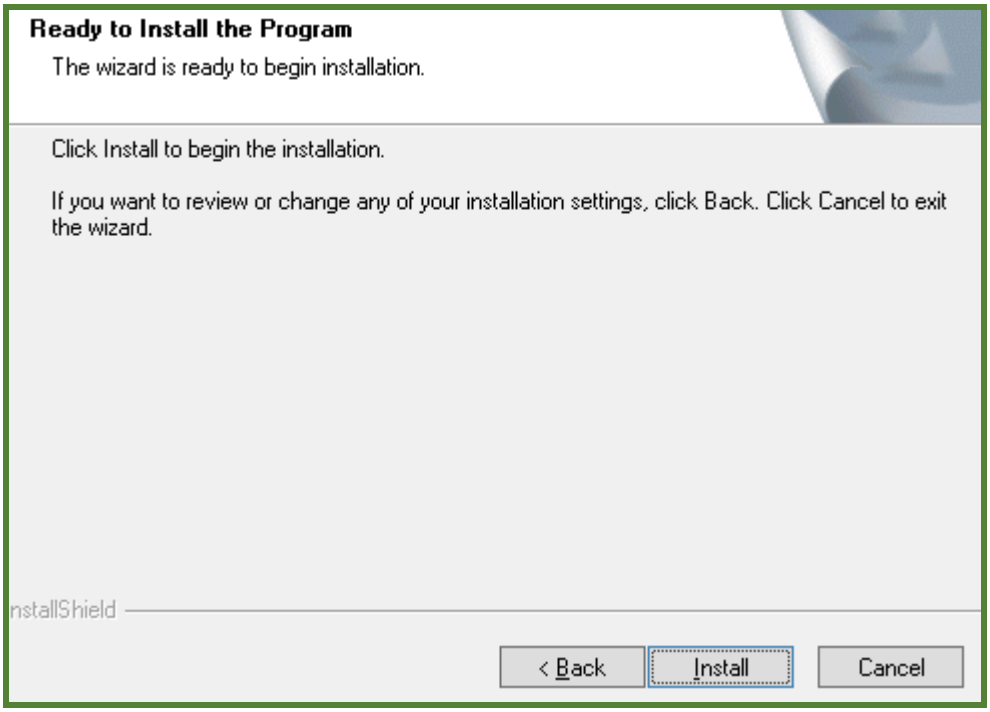
Picture 9

As for the clients, we choose "iVBox". This will install VirtualBox software on this server. Lateron, we can user VirtualBox to create virtual machines. Picture 10:



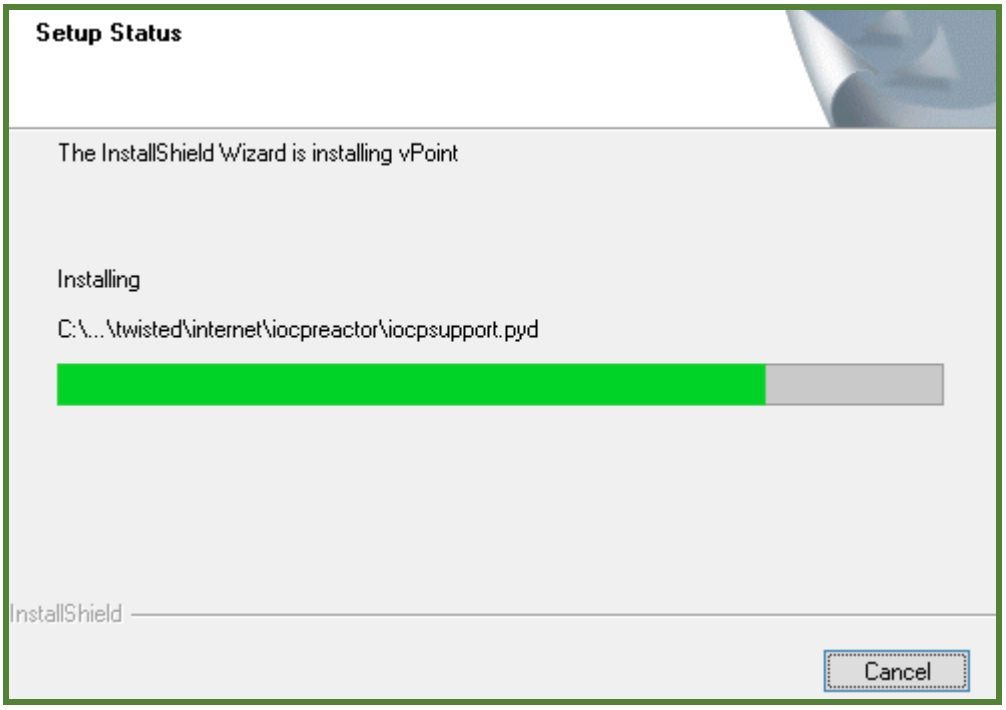

Picture 10

Click “Install” to start the installation:


Ready to Install the Program
The wizard is ready to begin installation.
Click Install to begin the installation.
If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.
InstallShield
< Back
Install
Cancel

Picture 11

Installing:



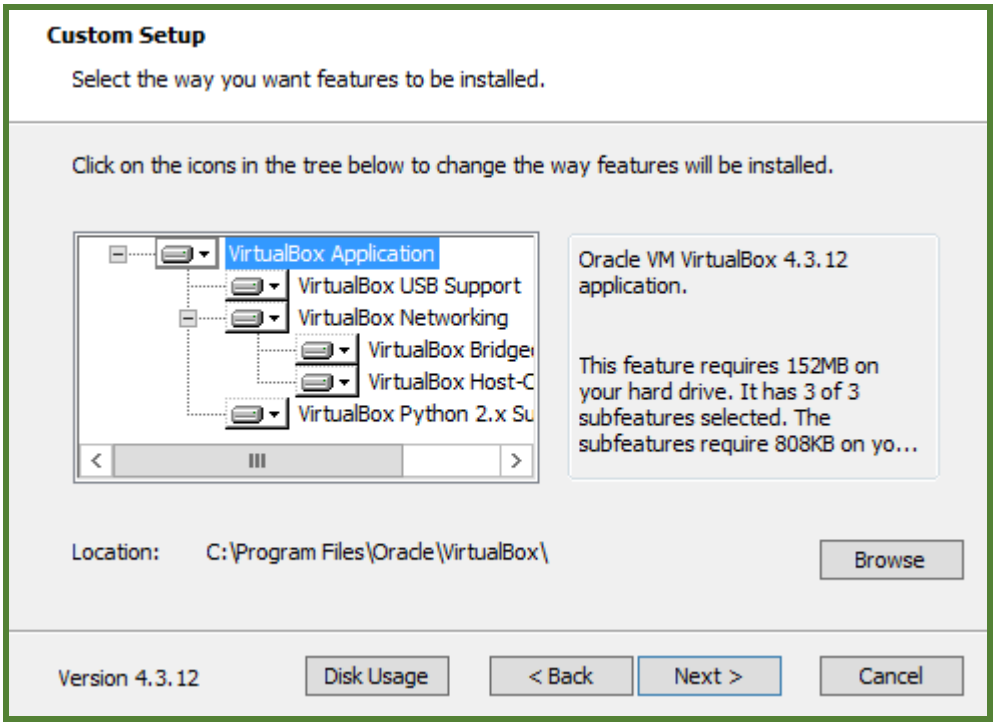

Picture 12

Then comes up the installation of VirtualBox:

Welcome to the Oracle VM VirtualBox 4.3.12 Setup Wizard
The Setup Wizard will install Oracle VM VirtualBox 4.3.12 on your computer. Click Next to continue or Cancel to exit the Setup Wizard.
Version 4.3.12
Next >
Cancel

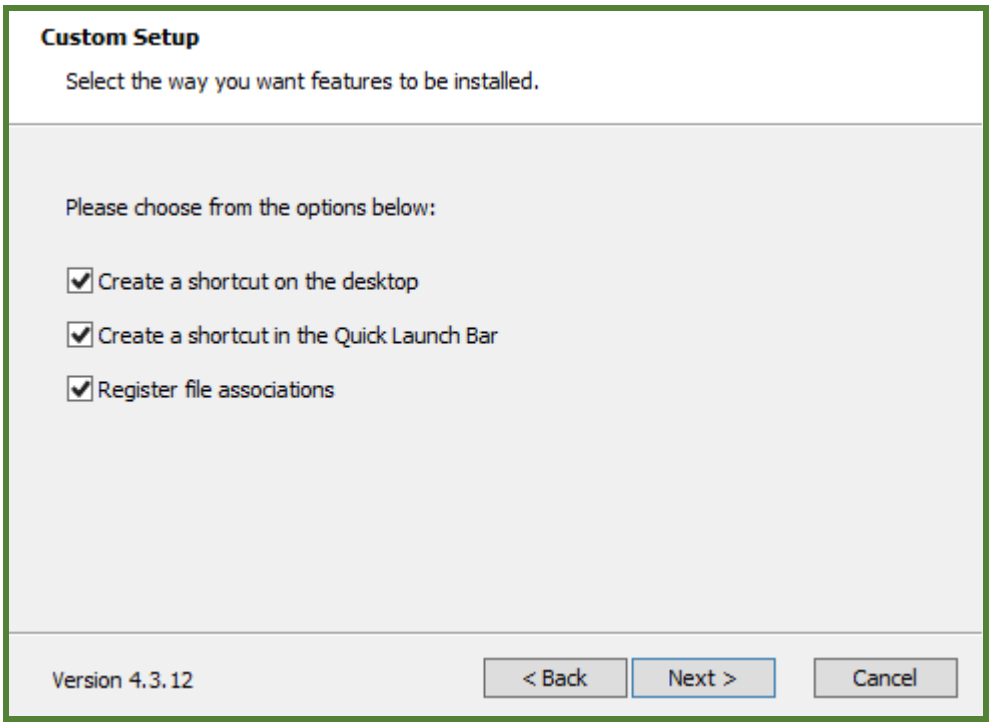
Picture 13

Choose location. Defautl is OK:


Custom Setup
Select the way you want features to be installed.
Click on the icons in the tree below to change the way features will be installed.
VirtualBox Application
VirtualBox USB Support
VirtualBox Networking
VirtualBox Bridge
VirtualBox Host-C
VirtualBox Python 2.x Su
Oracle VM VirtualBox 4.3.12 application.
This feature requires 152MB on your hard drive. It has 3 of 3 subfeatures selected. The subfeatures require 808KB on yo...
Location:
C:\Program Files\Oracle\VirtualBox\
Browse
Version 4.3.12
Disk Usage
< Back
Next >
Cancel

Picture 14

Click on “Next”:


Custom Setup
Select the way you want features to be installed.
Please choose from the options below:
Create a shortcut on the desktop
Create a shortcut in the Quick Launch Bar
Register file associations
Version 4.3.12
< Back
Next >
Cancel

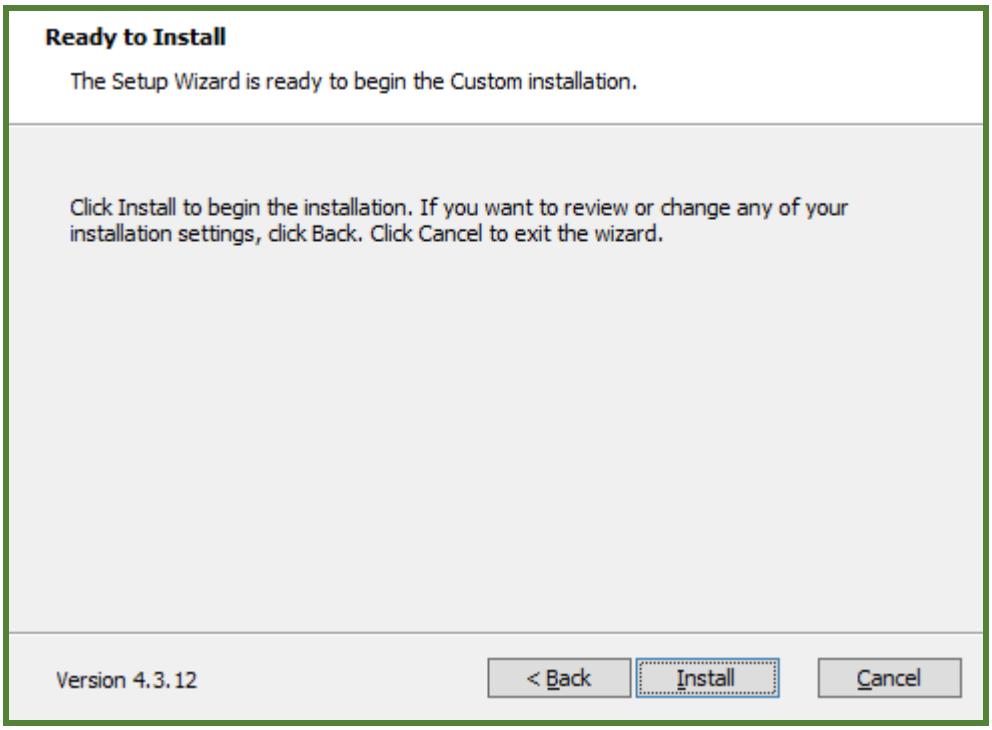
Picture 15

Click on “Yes” to confirm:

Warning:
Network Interfaces
Installing the Oracle VM VirtualBox 4.3.12 Networking feature will reset your network connection and temporarily disconnect you from the network.
Proceed with installation now?
Version 4.3.12
Yes
No

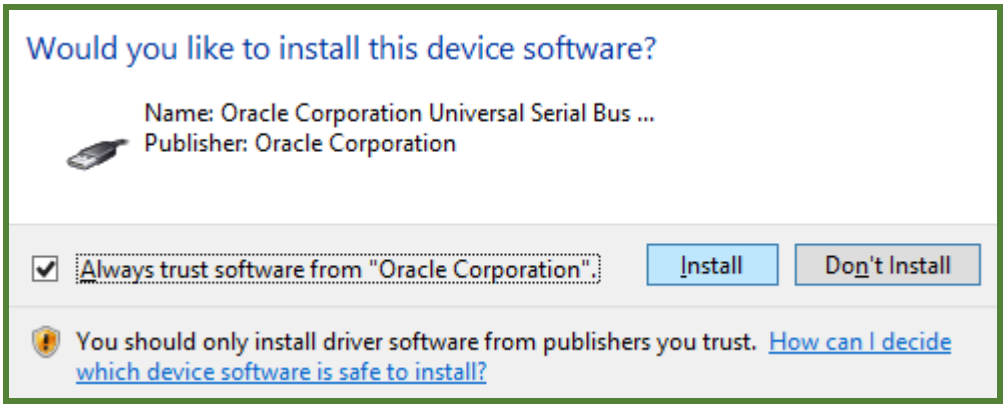
Picture 16

Click on “Install” to start the installation:


Ready to Install
The Setup Wizard is ready to begin the Custom installation.
Click Install to begin the installation. If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.
Version 4.3.12
< Back
Install
Cancel

Picture 17

When “Windows Security” pops up, check “Always trust software from ‘Oracle Corporation’”, and Click “Install”:


Would you like to install this device software?
Name: Oracle Corporation Universal Serial Bus ...
Publisher: Oracle Corporation
Always trust software from "Oracle Corporation".
Install
Don't Install
You should only install driver software from publishers you trust. How can I decide which device software is safe to install?

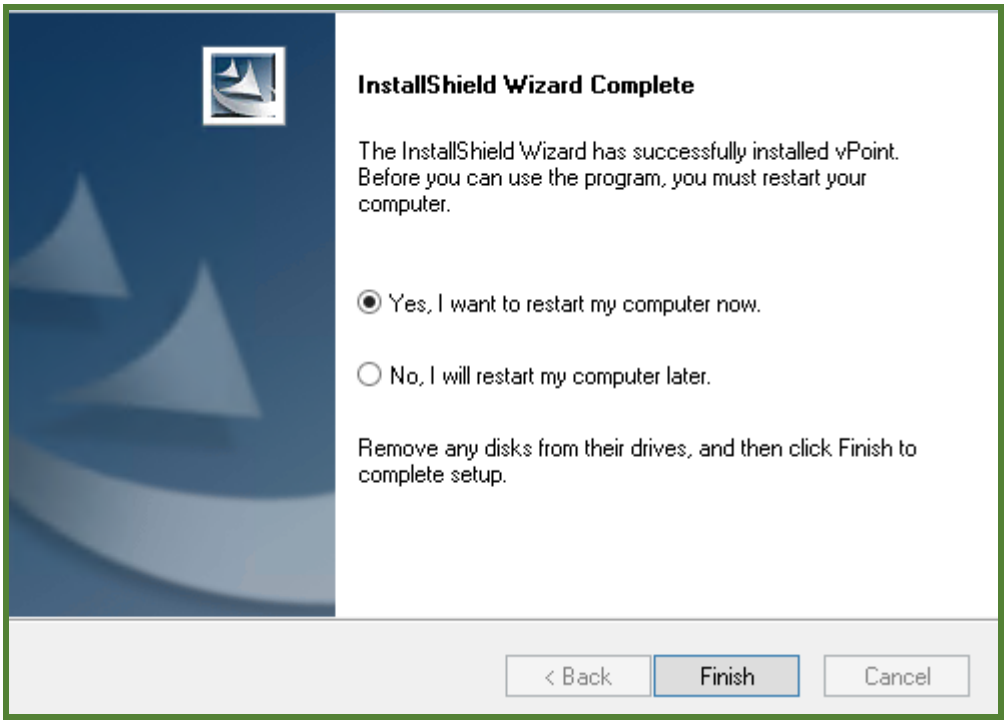
Picture 18

Click on “Finish”:

Oracle VM VirtualBox 4.3.12 installation is complete.
Click the Finish button to exit the Setup Wizard.
Start Oracle VM VirtualBox 4.3.12 after installation
Version 4.3.12
< Back
Finish
Cancel

Picture 19

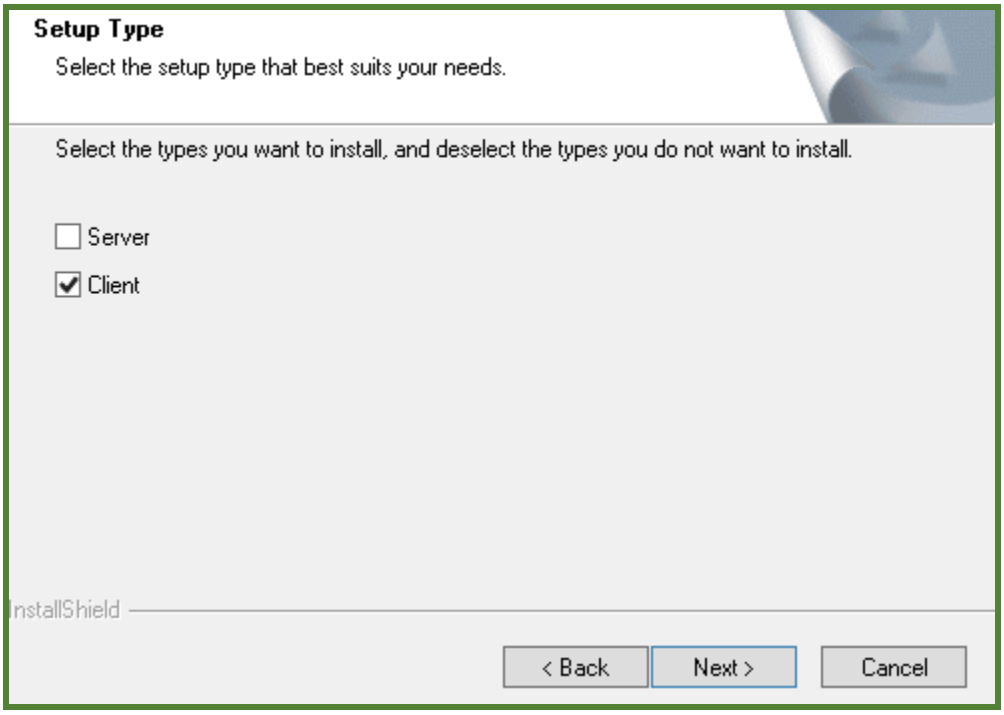
Then it comes back to vPoint installation. Click on “Finish” to restart the server:


InstallShield Wizard Complete
The InstallShield Wizard has successfully installed vPoint. Before you can use the program, you must restart your computer.
Yes, I want to restart my computer now.
No, I will restart my computer later.
Remove any disks from their drives, and then click Finish to complete setup.
< Back
Finish
Cancel

Picture 20

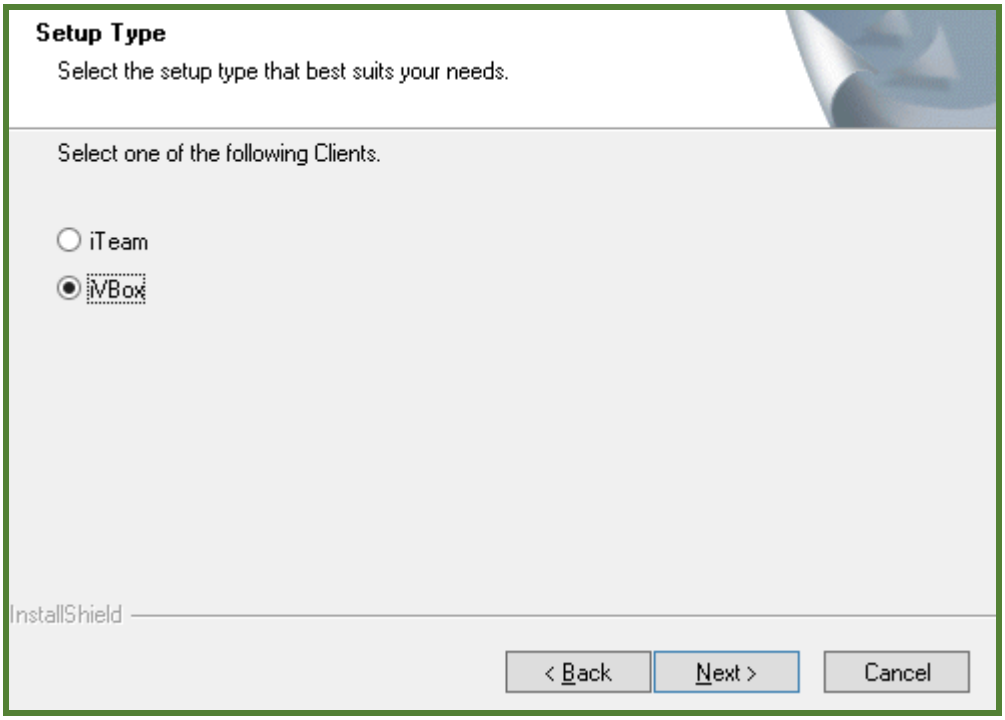
## 2.3 Install only the Client. This is for server that is intended for both vPoint Server and VM host, here are the steps:

Run the installation with initial steps same as 2.1 till this windows comes up. Choose “Client” only:


Setup Type
Select the setup type that best suits your needs.
Select the types you want to install, and deselect the types you do not want to install.
Server
Client
InstallShield
< Back
Next >
Cancel

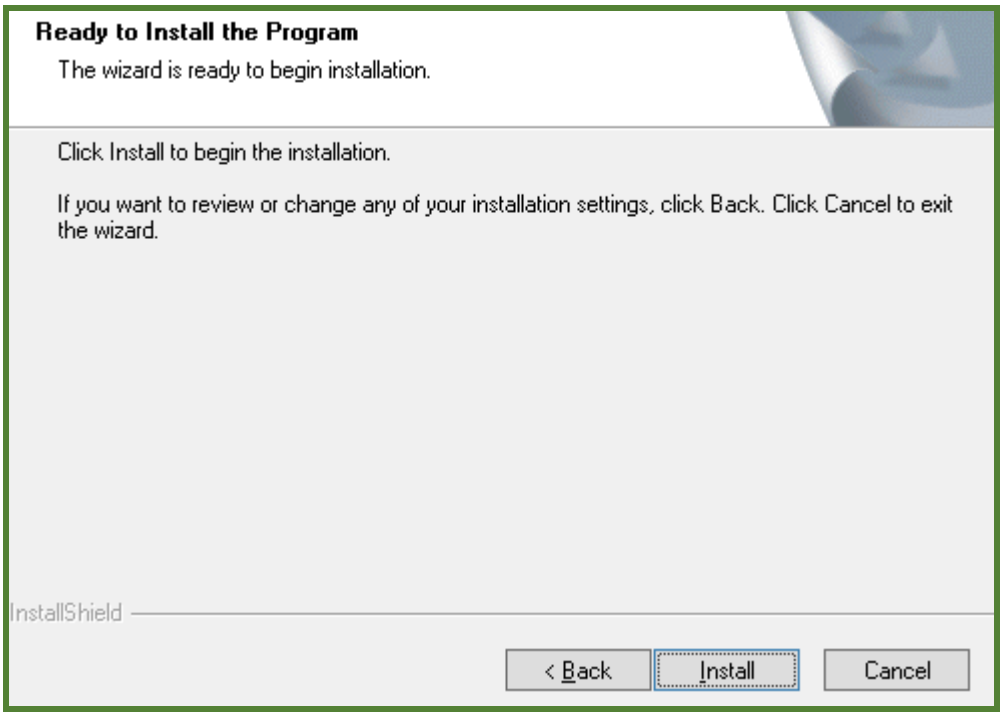
Picture 21

Then, choose “iVBox”. This will install VirtualBox:



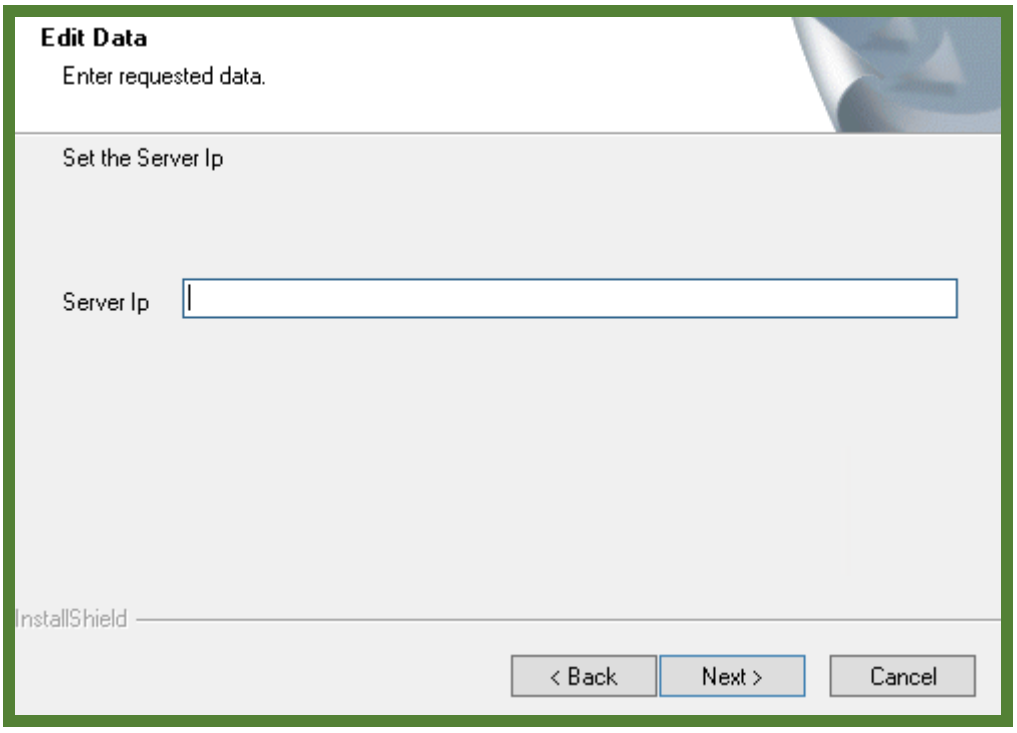

Picture 22

Click on “Next” to start the installation:


Ready to Install the Program
The wizard is ready to begin installation.
Click Install to begin the installation.
If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.
InstallShield
< Back
Install
Cancel

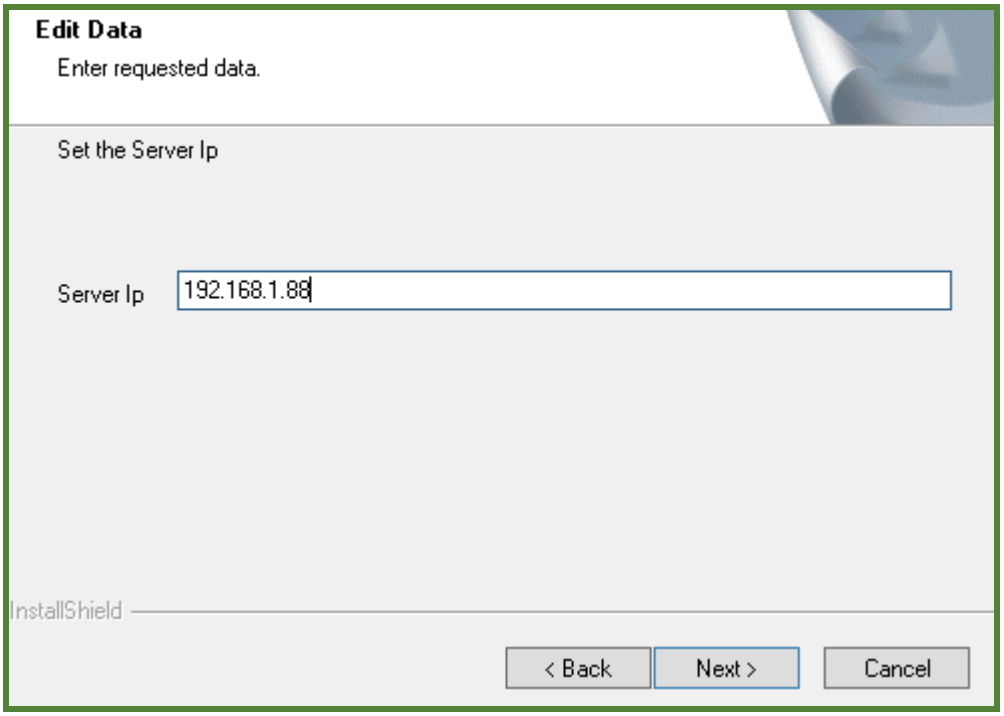
Picture 23

When it comes to the windows as shown below, type in the IP address of vPoint Server:




Picture 24

For example, the vPoint Server that we have installed in 2.1 has an IP address of 192.168.1.88, and want the current host server to use 192.168.1.88 to be its connection broder, we need to type in the vPoint Server IP address. See Picture 25:




Picture 25

Then comes the installation of VirtualBox. Follow the steps as described in 2.2. Restart the server when the installation is finished.

Welcome to the Oracle VM VirtualBox 4.3.12 Setup Wizard
The Setup Wizard will install Oracle VM VirtualBox 4.3.12 on your computer. Click Next to continue or Cancel to exit the Setup Wizard.
Version 4.3.12
Next >
Cancel

Picture 26

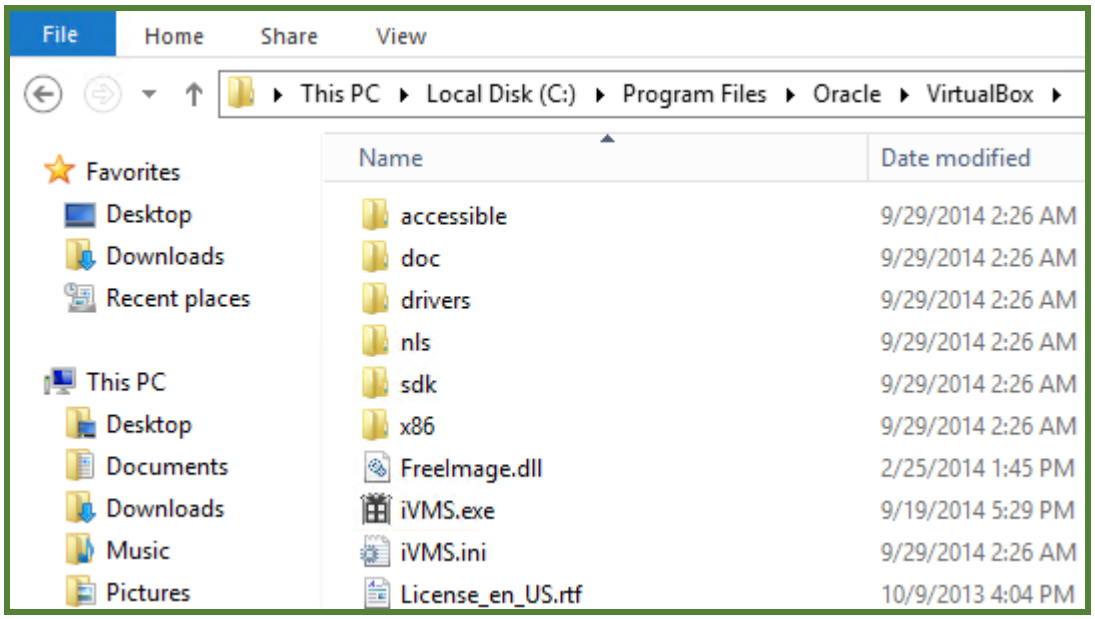
**Notes:**

**1） The “Server” part in vPoint installation package contains vPoint WebConsole and User Account Management, Diana Management. It works as the connection broker between Diana and Host Servers. For a multiple-server configuration environment, one vPoint Server installation is enough for all the Host Servers.**

**2） The client option of “iVBox” in the vPoint installation package refers to the virtualization software “VirtualBox”. It shall be installed on each Host Server.**

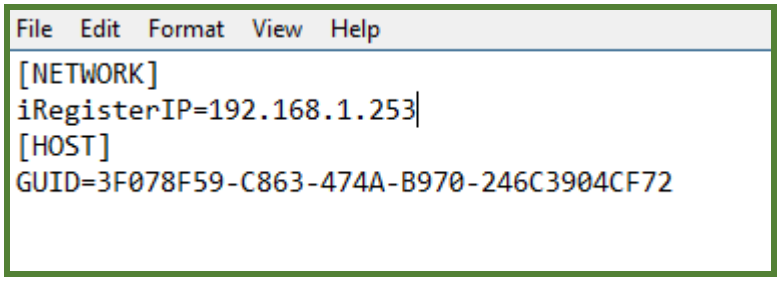
**3） If there are multiple vPoint Servers in the environment, Host Servers can be pointed to any one of them. And this pointing can be changed any time by modifying “iVMS.ini” file of the Host Server. Say, a Host Server “A” pointed to 192.168.1.88 now needs to be pointed another vPoint Server with IP address 192.168.1.253. Here are the steps:**

**Log on Host Server A, and go to location C:\Program Files\Oracle\VirtualBox. Picture 27:**




Picture 27

Find iVMS.ini and open it with Notepad:

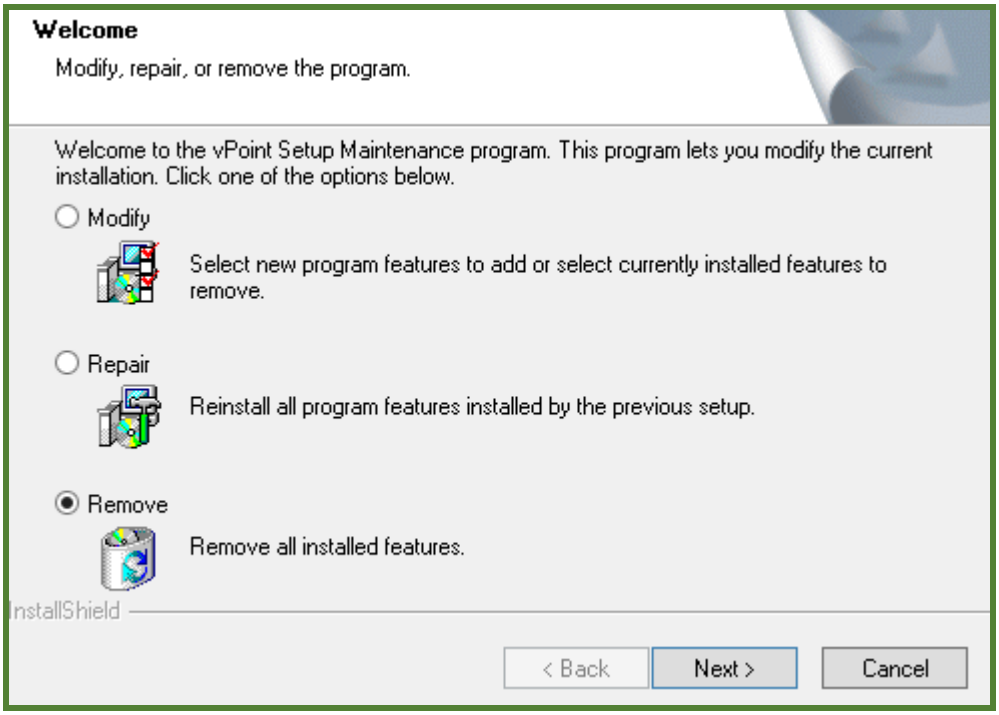



Picture 28

Change iRegisterIP to “192.168.1.253”, save it and then restart the server to take effect.

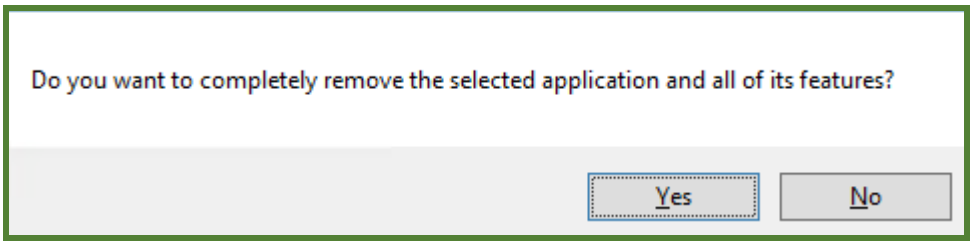
## Chapter 3 How to uninstall vPoint 2.1

Double click to run “vPointInstallationPackage”. When it comes to this window, choose “Remove”：


Welcome
Modify, repair, or remove the program.
Welcome to the vPoint Setup Maintenance program. This program lets you modify the current installation. Click one of the options below.
Modify
Select new program features to add or select currently installed features to remove.
Repair
Reinstall all program features installed by the previous setup.
Remove
Remove all installed features.
InstallShield
< Back
Next >
Cancel

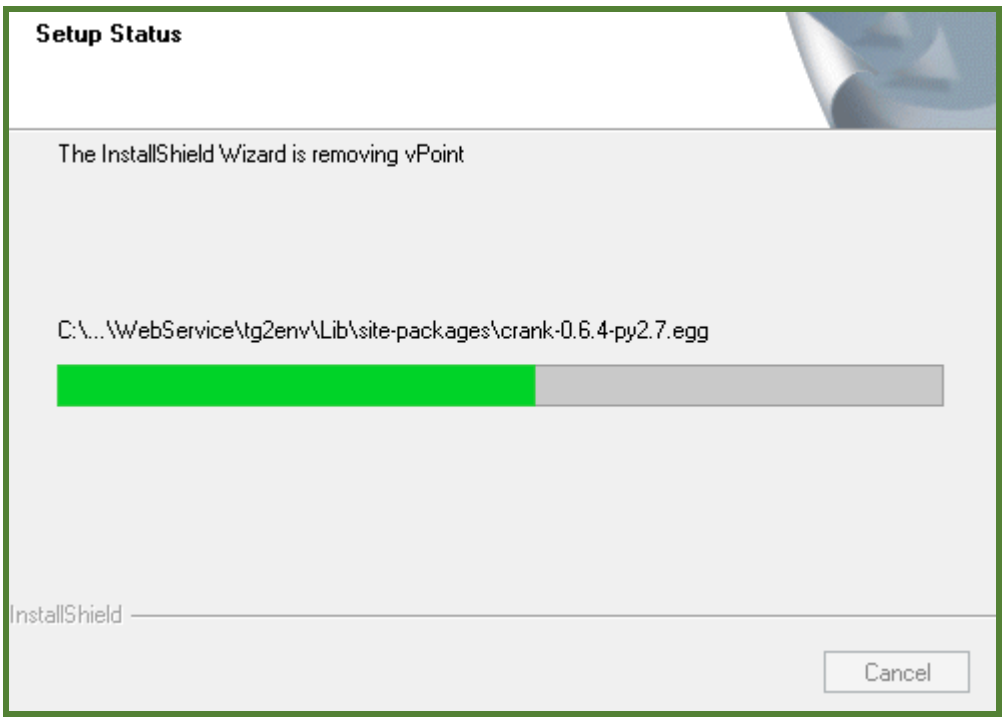
Picture 29

Click on “Yes” to confirm:



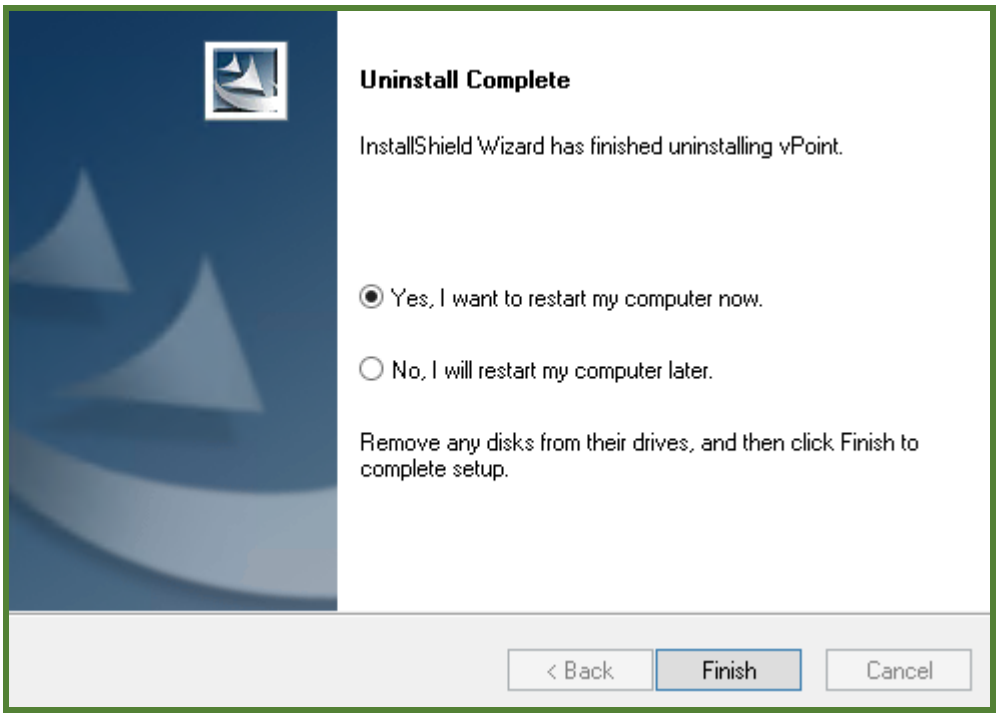

Picture 30

Uninstalling:




Picture 31

When it completes, click on “Finish” to restart the server:


Uninstall Complete
InstallShield Wizard has finished uninstalling vPoint.
Yes, I want to restart my computer now.
No, I will restart my computer later.
Remove any disks from their drives, and then click Finish to complete setup.
< Back
Finish
Cancel

Picture 32

Note: this uninstallation process only uninstalls vPoint2.1. VirtualBox remains unchanged.

# Chapter 4 The WebConsole of vPoint2.1 Server

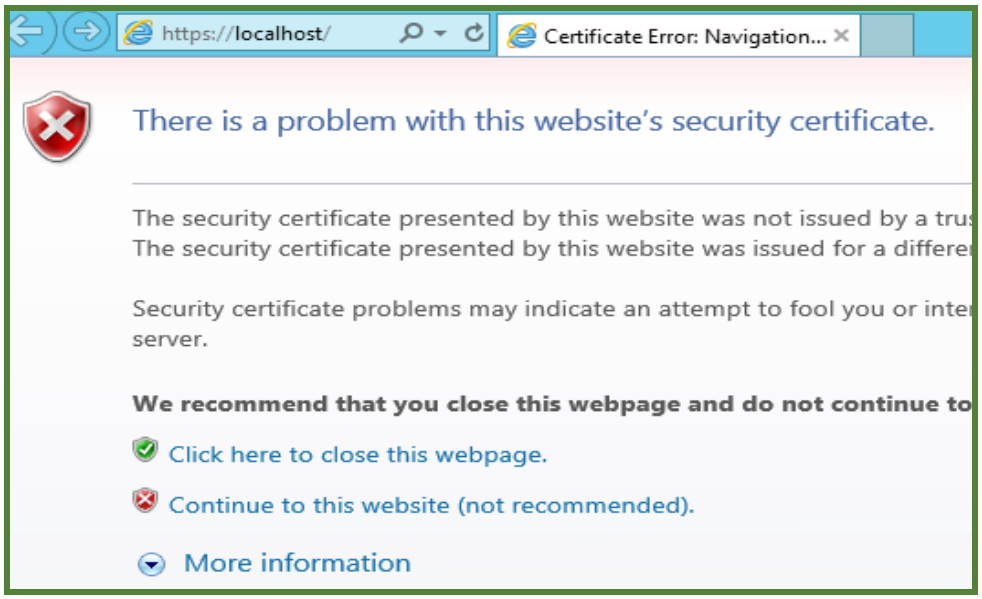
When vPoint Server is installed, we can run vPoint WebConsole to manage VMs, setting up Diana user account, etc.

## 4.1 How to Log in WebConsole

Double click on “WebConsole” icon:

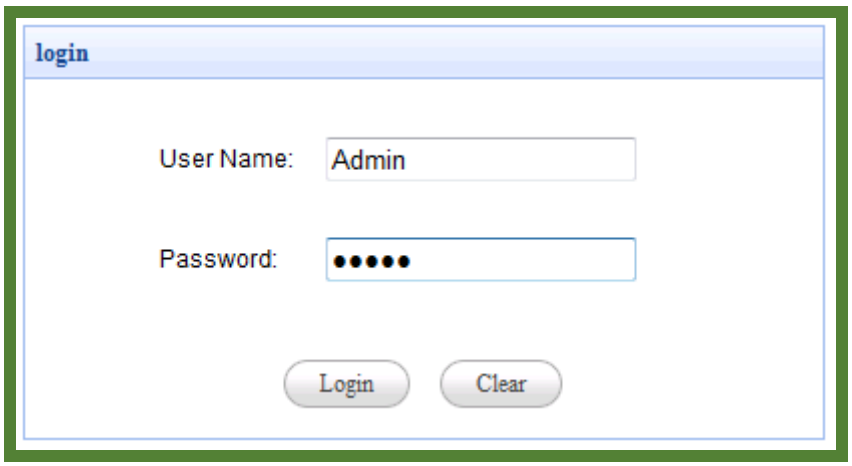
Picture 33

This action will start the brower as show below. Choose “Continue to this website”:


https://localhost/
Certificate Error: Navigation...
There is a problem with this website's security certificate.
The security certificate presented by this website was not issued by a trus
The security certificate presented by this website was issued for a differe
Security certificate problems may indicate an attempt to fool you or inte
server.
We recommend that you close this webpage and do not continue to
Click here to close this webpage.
Continue to this website (not recommended).
More information

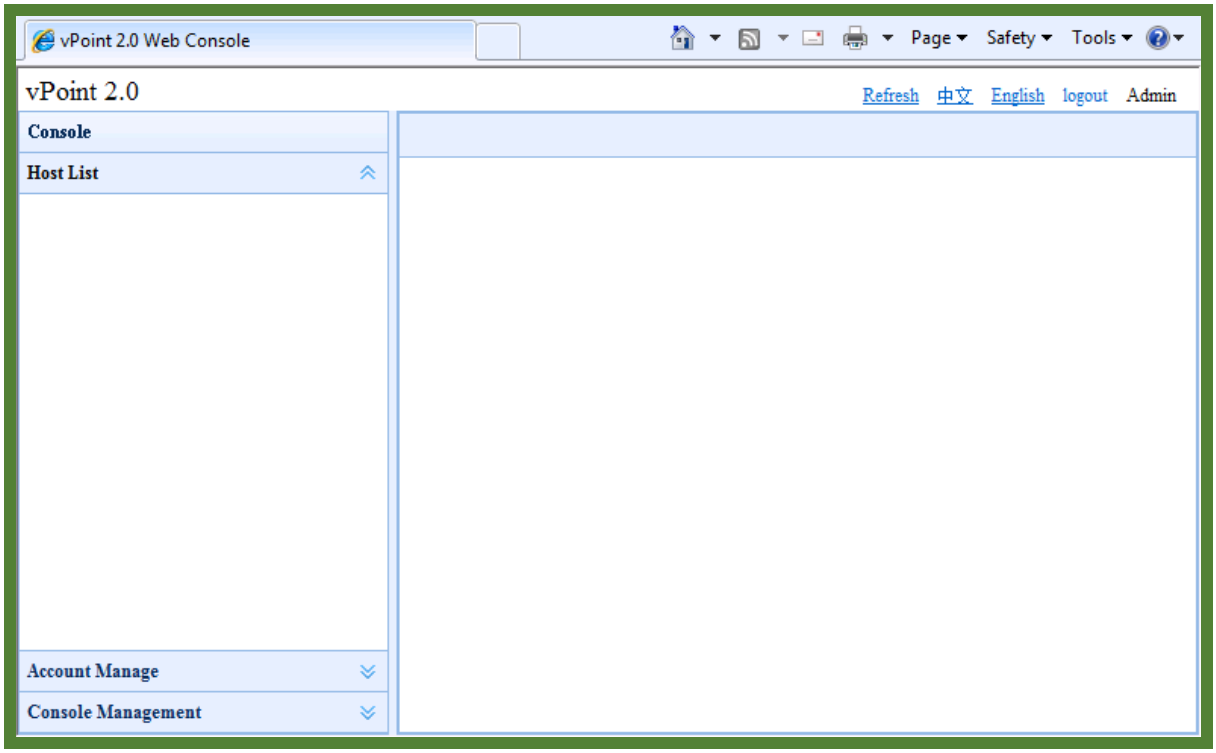
Picture 34

Type in Default User Name and Password (It is case sensitive):




Picture 35

Then we will come to the WebConsole home page:



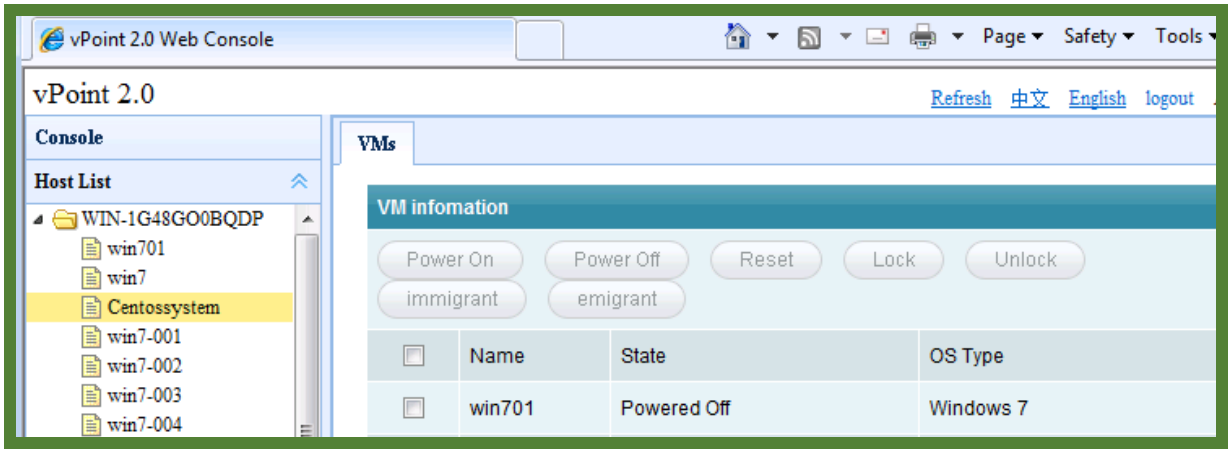

Picture 36

The list is empty since we have not created any virtual machines yet.

When we finishing creating VMs through VirtualBox Manager and having all needed softeware and applications installed in the VM, we can shut it down, and click on the Refresh button on vPoint WebConsole. And then the VM will be shown in the list.

## 4.2 Functions of vPoint WebConsole:

**Host List**



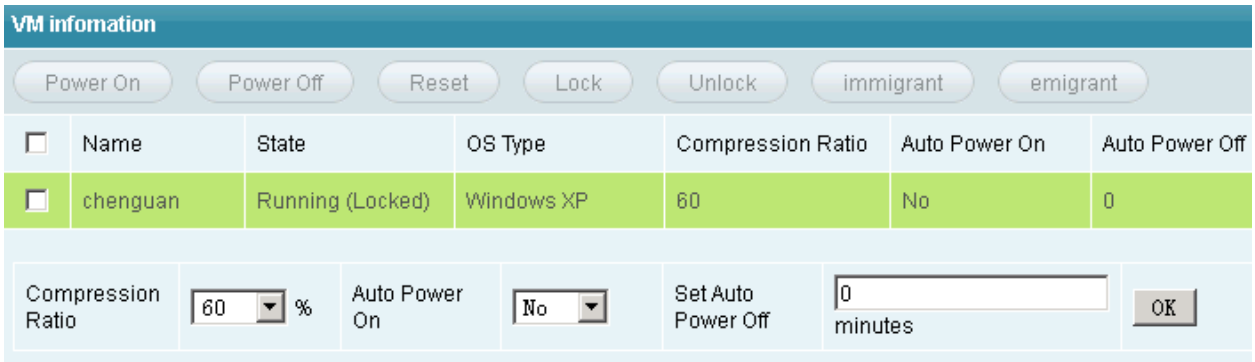

Picture 37

As shown in Picture 37, Host List lists all Host Servers that are set to take this vPoint Server as

connection broker. Under each Host Server lists all available VMs on that Host. “VM Information” on the right gives information on VM’s name, status, OS Type. Under it is the row of functioning buttons. The below chart gives the details:

| Host List | |
|---|---|
| Power On | Click on this button will power on all selected VMs. |
| Power Off | Click on this button will power off all selected VMs. |
| Reset | Click on this button will force shut down all selected VMs. |
| Lock | Click on this button will lock all selected VMs, so that NO Diana can Connect to this VM. |
| Unlock | Click on this button will unlock all selected VMs, so that they are available for Diana users to connect. |
| Immigrant | Click on this button will immigrant all selected VMs, so that they are ready to be connected by Dianna users. In this status, the VMs could not be edited or modified by VirtualBox Manager. |
| Emigrant | Click on this button will emigrant all selected VMs, so that they can be edited or modified by VirtualBox Manager. In this status, the VMs cannot be connected by Diana users |

**In the “Host List”, choose a VM, then you can see some more setting options as below:**




Picture 38

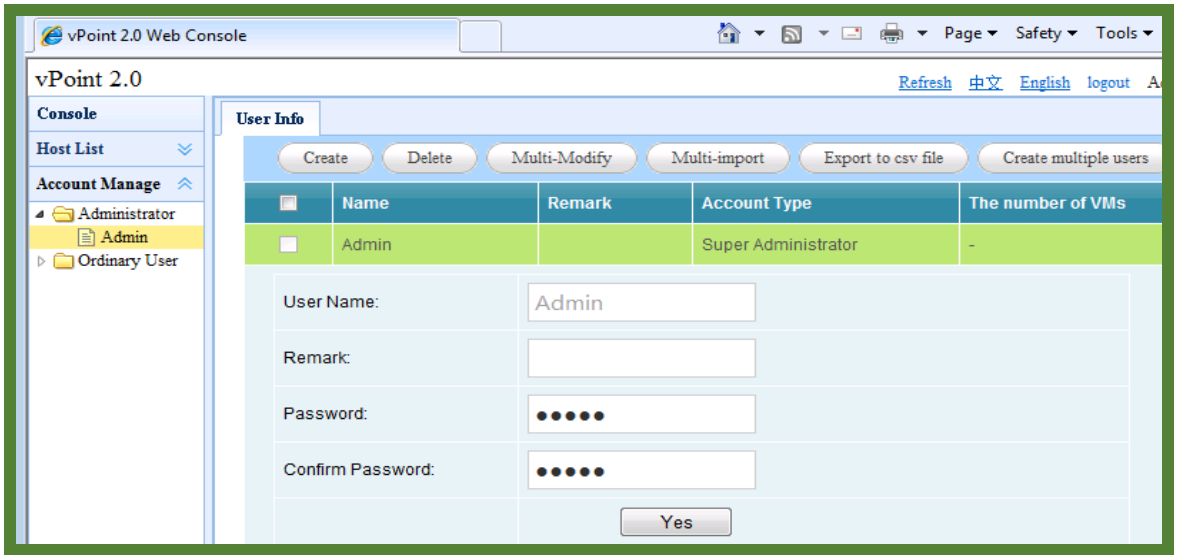
**Compression Ratio:** the default value is 60%, other options including 50%, 70%, 80% and 90%. The higher the value, the better display effects of VM desktop. Of cause, with higher ratio, the consumption of CPU and network bandwidth will also be higher.

**Auto Power On:** default value is “No”. Set to “Yes” if you want this VM to power on togher with the

Host Server.

**Set Auto Power Off:** If want this VM power off automatically after a vertain period of time since it is disconnected from Diana, type in a number here. The biggest value is 2880 (minutes). Default value “0” means the VM will not power off automatically. **And remember to click “OK” button to save the changes.**

### 4.3 User Accounts Management




Picture 39

There two kinds of User Accounts. Administrator users have full access to all VMs, while Ordinary users only have rights to access those VMs that are assigned to them.

As shown in Picture 39, by default, there is an Administrator user account with name “Admin”. Its password by default is also “Admin”. More Administrator user accounts can be created if needed.

After new installation of vPoint2.1, the Ordinary User list is empty. We need to create user accounts for all Diana users and then assign proper VMs to them.

**The below chart lists function of all the buttons:**

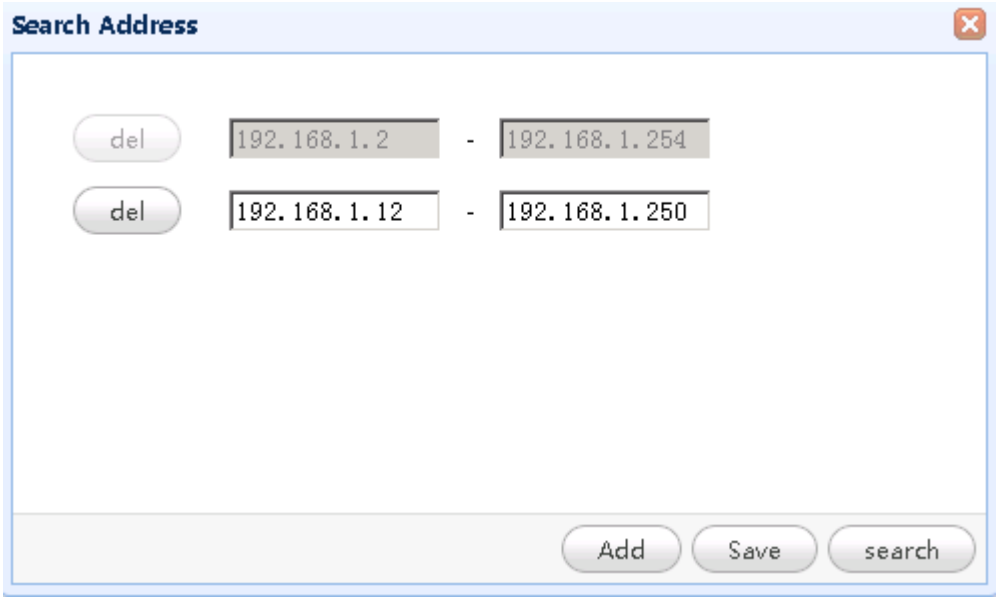
| | |
|---|---|
| Create | Click on this button, type in User Name and password. Choose user type “Administrator” or “Ordinary”. If the type is “Ordinary”, assign at least 1 VM to this user. Then click on Yes to finish |
| Delete | Click on this button will delete all selected user accounts. |
| | When more than 2 user accounts are selected, click on this button will |

| | |
|---|---|
| Multi-Modify | go to page where we can change account type, password and rights to the use of USB devices. |
| Export to csv file | Save all user account information to a csv file. |
| Multi-Import | Import user accounts from a csv file. |
| Create Multiple Users | Click on this button will go to page where we can create multiple user accounts with same password, account type and rights to use of USB devices. |

### 4.4 Terminal (Diana) Management

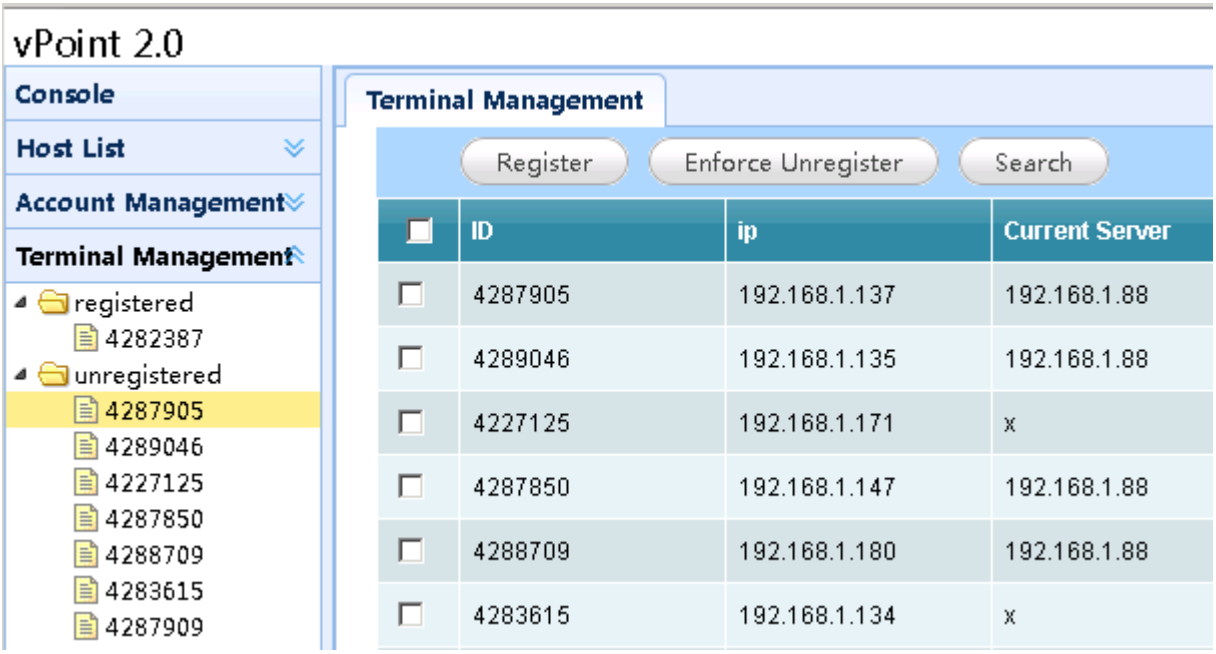
Here we can change the settings of Diana remotely same as we may have done at Diana side. Before we can change the settings, we need to register the Diana to this server.

Go to “unregistered”, and click “Search” if the list is empty.




Picture 40

Set an IP address range, and click “Search”. After that, close this window and refresh WebConsole



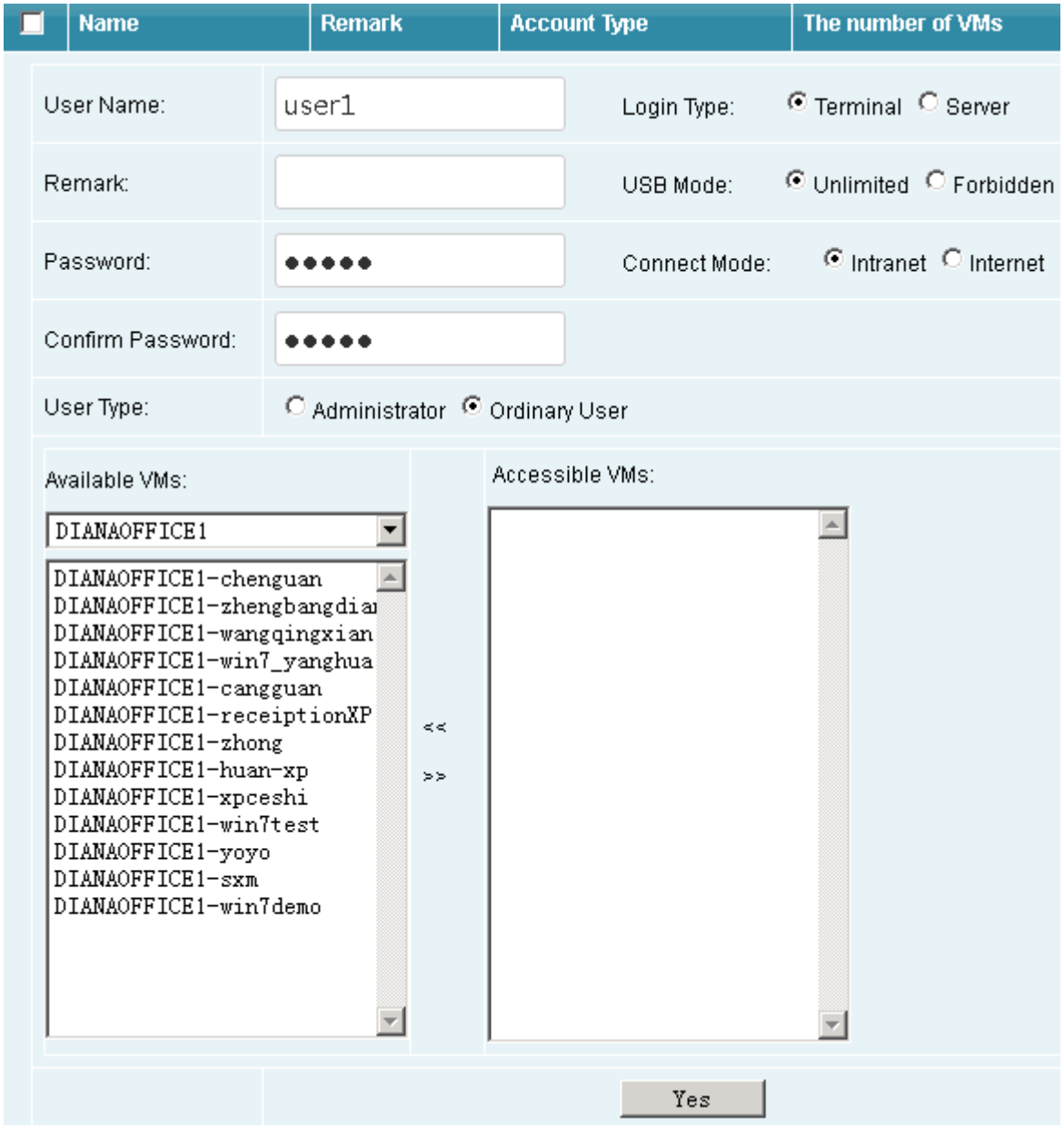

Picture 41

Now we can see a list of Diana terminals. Choose the Diana that you want to register, then click “register” to register it. In our example, Diana with serial number “4287905” is the newly registered device. Choose it, and you will see the settings of this Diana. Now we can make changes to its settings.

Picture 42

### 4.5 Create Diana User Accounts

**Go to "Account Management" of WebConsole,** choose "Ordinary User", then on the right, click on "Create".




Picture 43

**In he Picture above:**

**Login Type:** the default is "Terminal". "Server" option currently is not functional.

**USB Mode:** if this user account is allowed to use USB device on Diana, choose "Unlimited". Otherwise, set to "Forbidden".

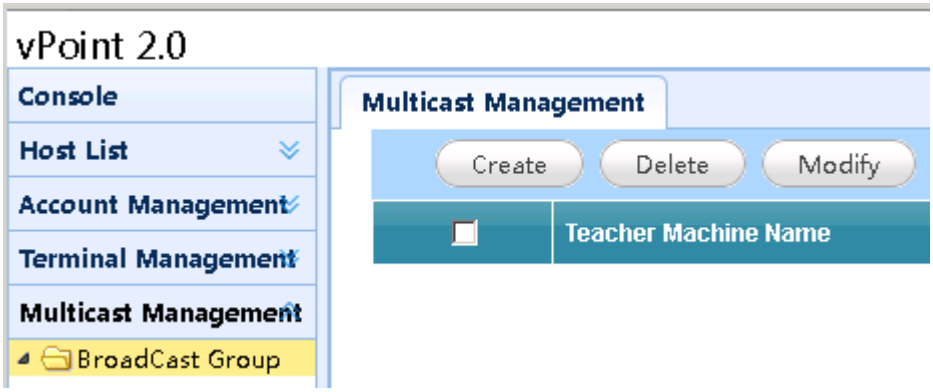
**Connection Mode:** Default is "Intranet". If this user account need to access its VM across Internet, set to "Internet" (make sure the Server with vPoint2.1 Server part installed has to be accessed over internet and its port 21215 is not blocked by any firewall).

### 4.6 One-Key Broadcast

As compared to earlier vPoint version 2.0.1.4, One-Key Broadcasting is now a default function of vPoint 2.1. One-Key Broadcasting means: by one trike of key combination “Ctrl+Alt+F10” on the Teacher’s Diana, its desktop(video) + audio + mouse cursor will be sent to all Students’ Diana devices. This is very useful especially in school classrooms, or similar locations.

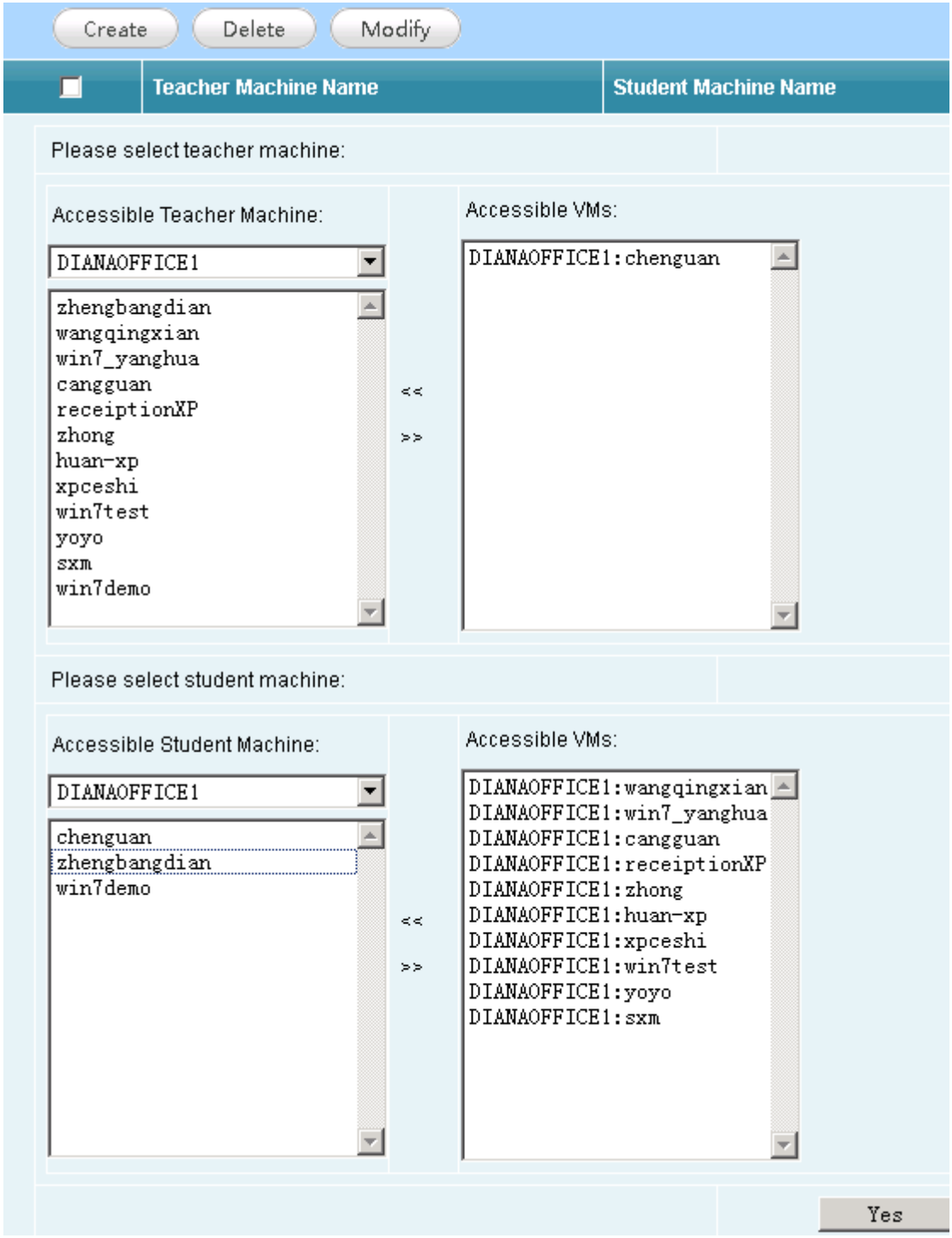
A BroadCast Group hat to be set up before One-Key Broadcast will work. Normally, such a group is formed by a Teacher’s VM and a certain number of Students’ VMs.

Go to “Multicast Management” of WebConsole, then “BroadCast Group”:




Picture 44

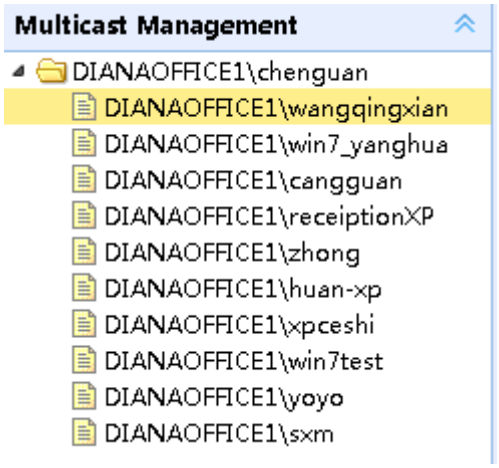
Then, click on “Create”:




Picture 45

As shown in the picture example, VM “chenguan” is the Teacher’s VM. The list in the column below are chosen Students’ VMs. Finally, do not forget to click on “Yes” to save these settings.

Now, in the “Multicast Management”, we can see a Broadcast Group there where Teacher’s VM “chenguan” is on top of the list. The rest VMs are for Students.




Picture 46

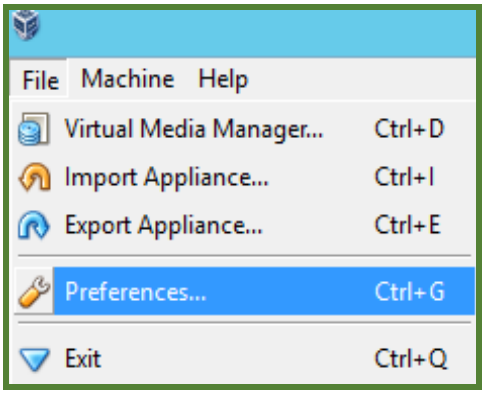
The biggest advantage of Diana One-Key Broadcast is that, when broadcasting (especially high CPU-consuming HD-Movie playback), only the Teacher's VM is playing HD video, though all Students' Diana device are playing the same video simultaneously. The total CPU consumption of server is extremely low as compared to traditional broadcasting software applications.

## Chapter 5 Creating Virtual Machines (VMs)

After installing vPoint2.1 and VirtualBox virtualization software, we can move on to creating virtual machines. The operation system (OS) of a VM could be any operation system that is supported by VirtualBox, including all Windows, Linux, MAC, Android, etc. There could be multiple VMs with same OS (say 5 VMs with Windows XP OS), or multiple VMs with different OS (say 1 with Windows XP, 1 Windows 7 and 1 Ubuntu, etc.).

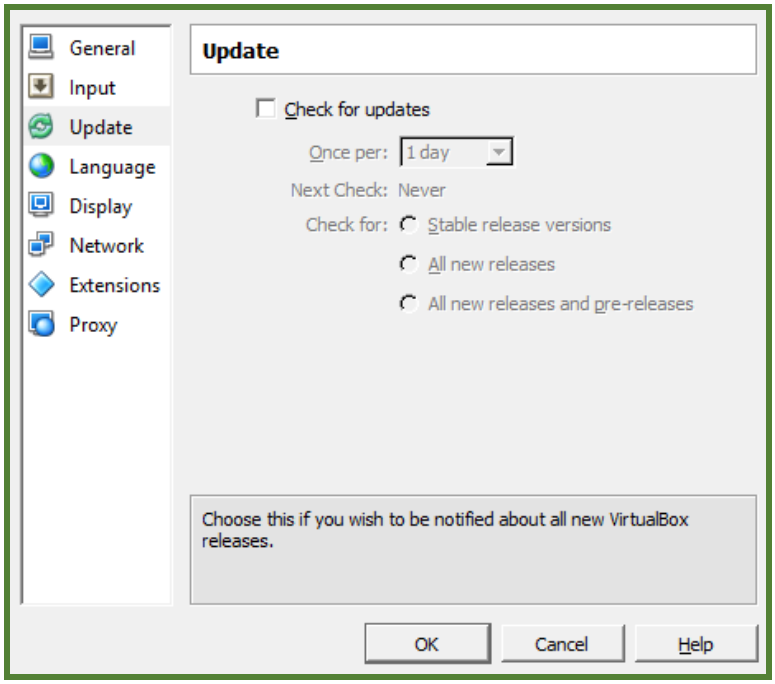
### 5.1 Change the global setting of VirtualBox

Before starting to create VMs, we'd better change the default VMs location of VirtualBox, since the default is server OS drive while we very often need to store all VM files in other drives. Open **Oracle VM Manager,** Click on "File", then choose "Preferences":



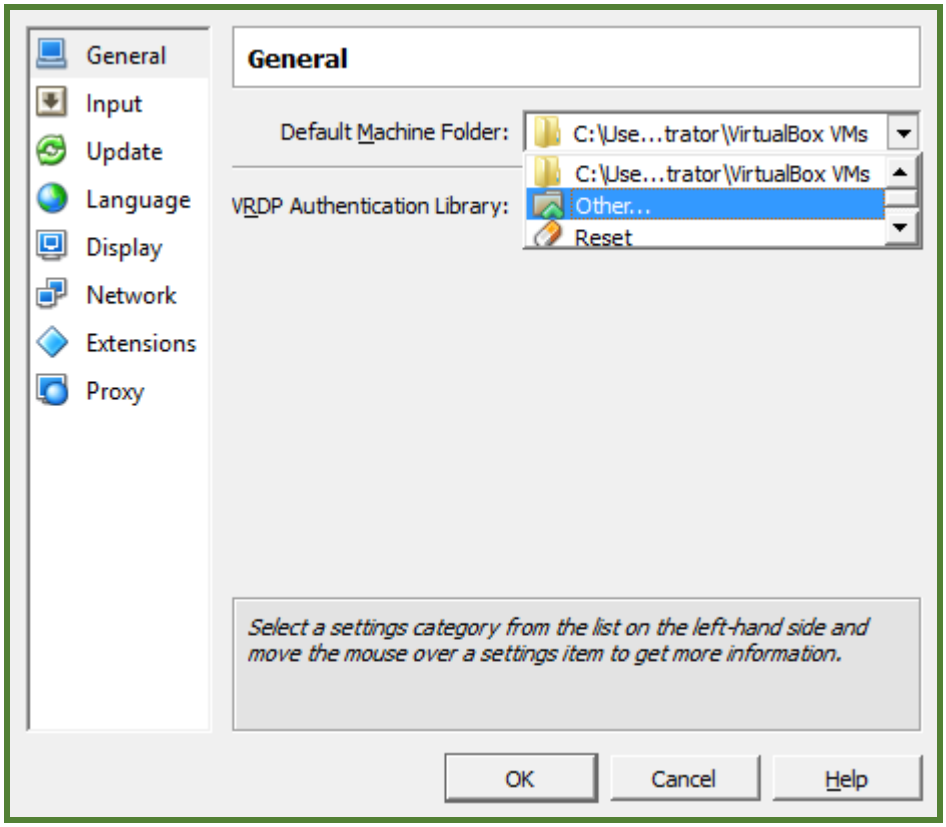

Picture 47

Choose "Update", uncheck "Check for updates":



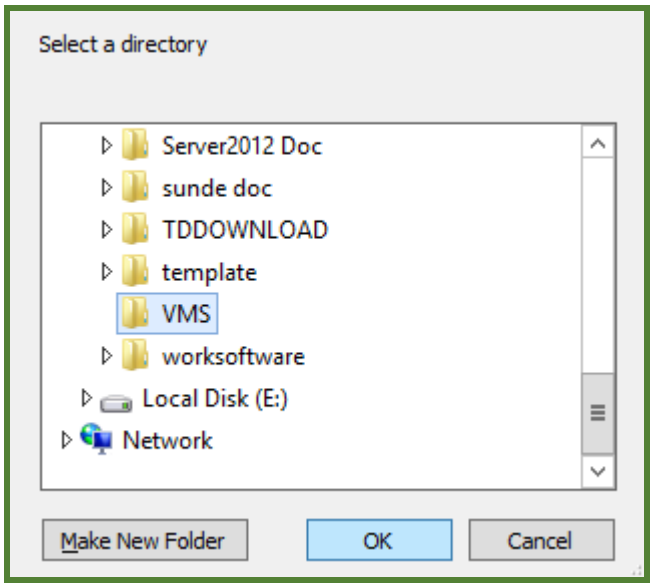

Picture 48

Choose “General”, Change the default machine folder:



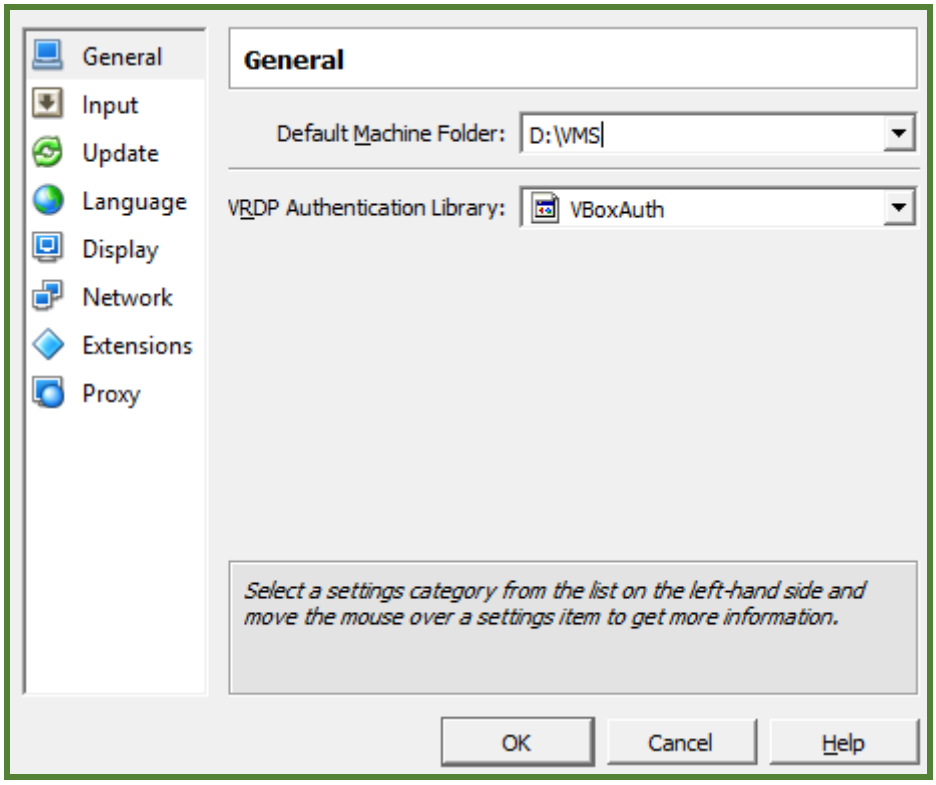

Picture 49

Browse the folder where the hard disk space is big enough for the Virtual Machines and click “OK”:




Picture 50

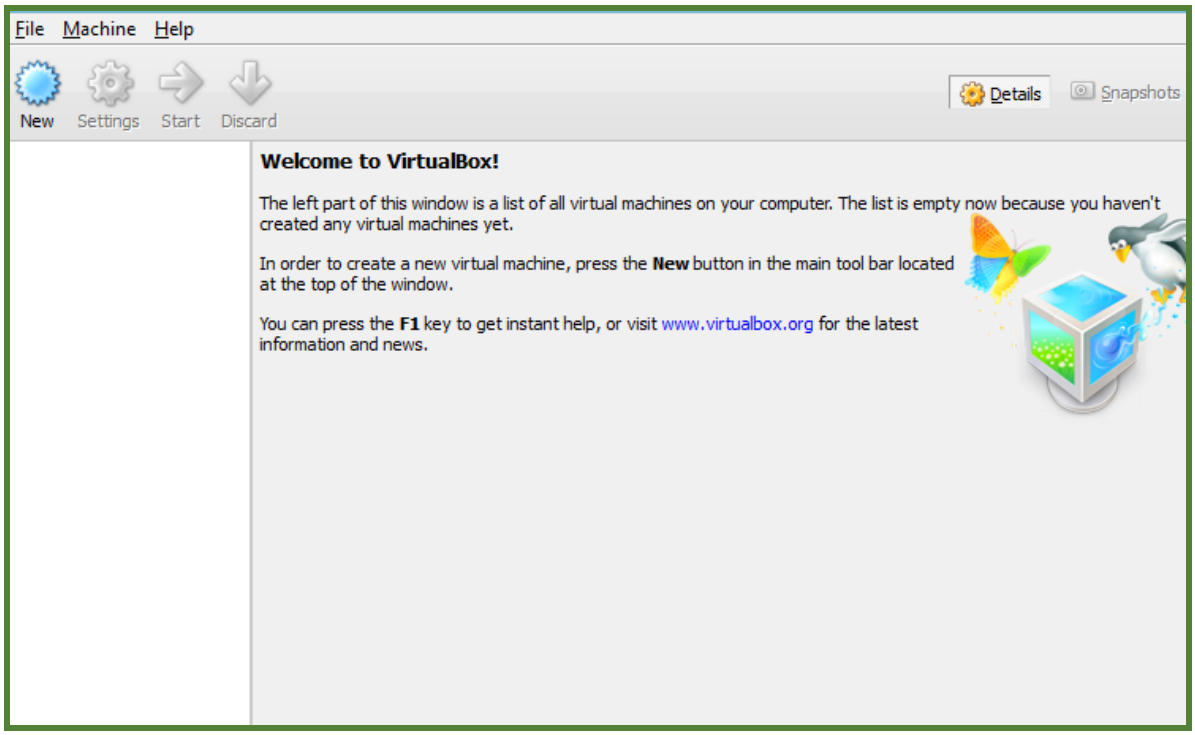
The Default Machine Folder has been changed. Picture 47:




Picture 51

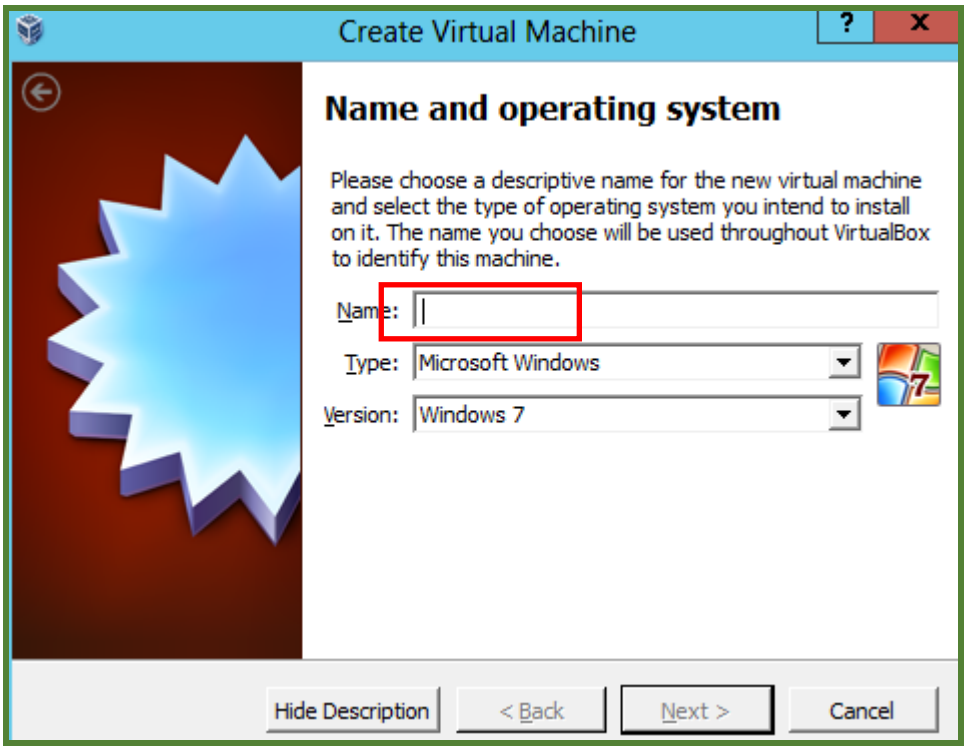
## 5.2 Creating Virtual Machines (VMs)

Click “New” to start the guide:


File
Machine
Help
New
Settings
Start
Discard
Details
Snapshots
Welcome to VirtualBox!
The left part of this window is a list of all virtual machines on your computer. The list is empty now because you haven't created any virtual machines yet.
In order to create a new virtual machine, press the New button in the main tool bar located at the top of the window.
You can press the F1 key to get instant help, or visit www.virtualbox.org for the latest information and news.

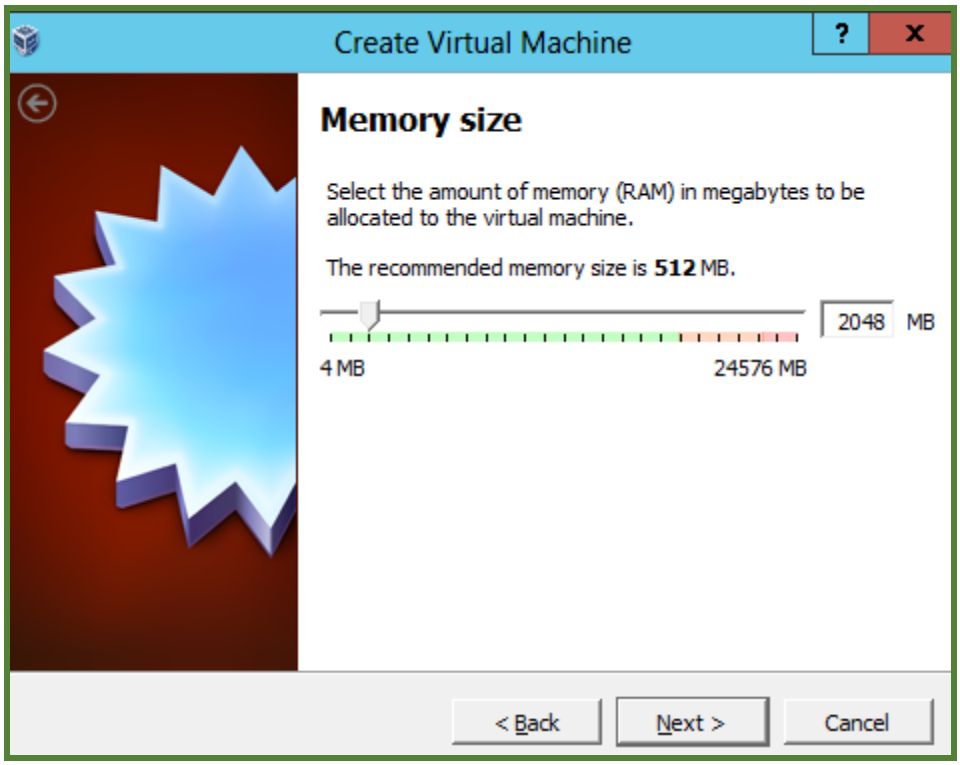
Picture 52

Name the virtual machine, and choose the right operation system:


Create Virtual Machine
Name and operating system
Please choose a descriptive name for the new virtual machine and select the type of operating system you intend to install on it. The name you choose will be used throughout VirtualBox to identify this machine.
Name:
Type:
Microsoft Windows
Version:
Windows 7
Hide Description
< Back
Next >
Cancel

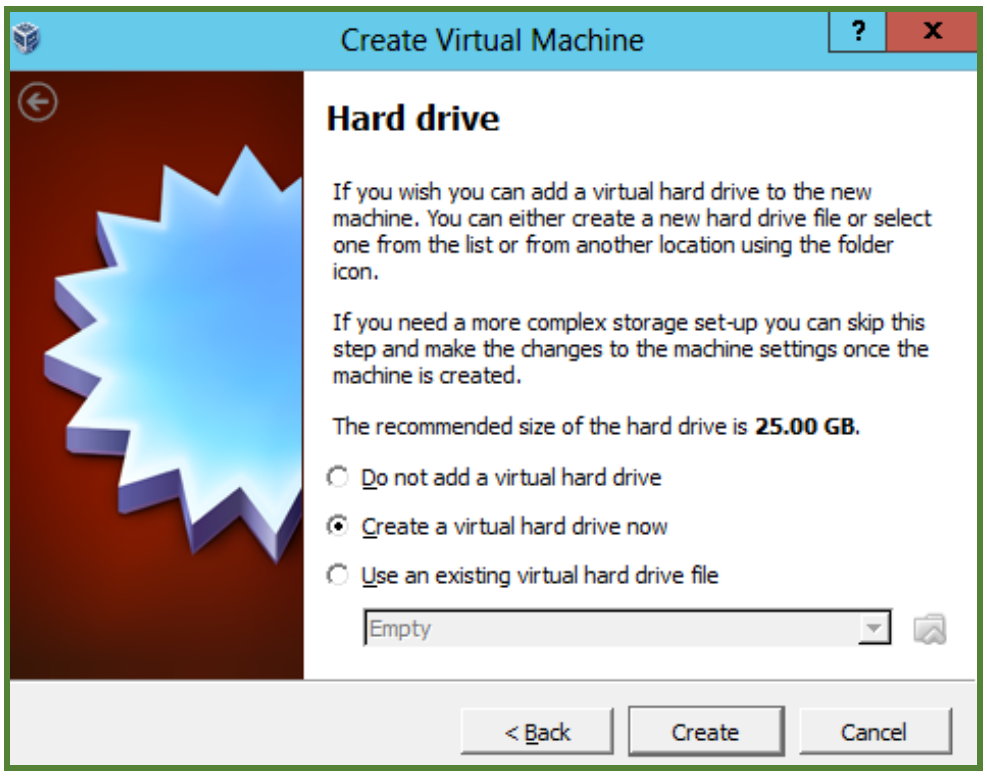
Picture 53

Set the RAM size of virtual machine:



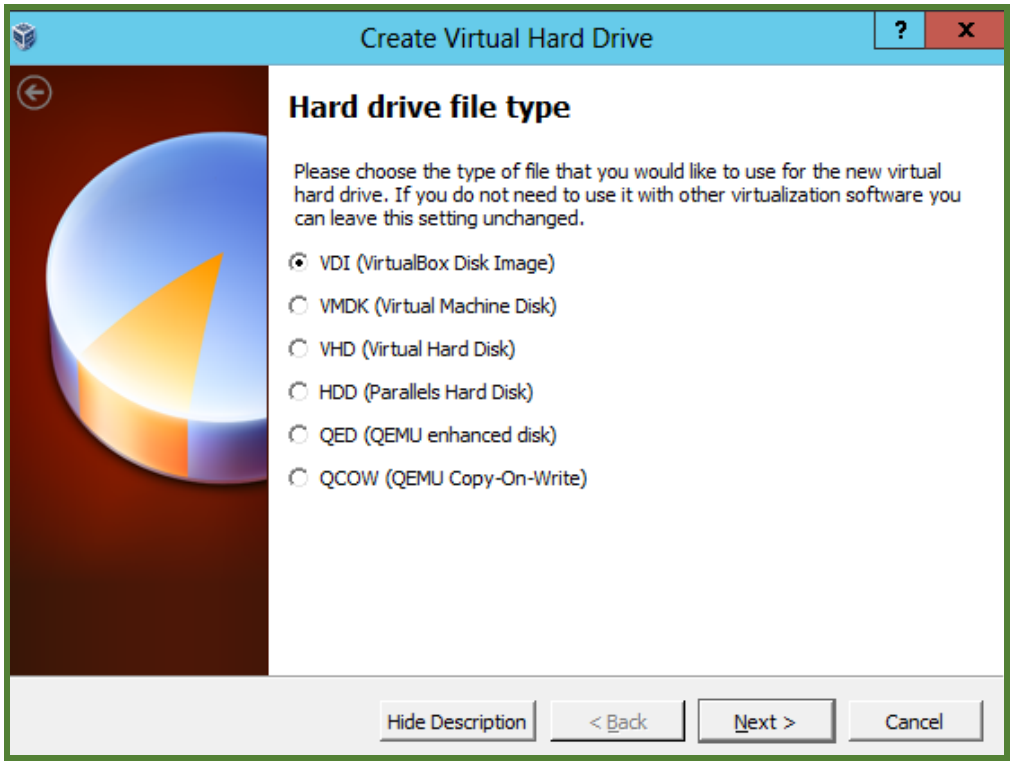

Picture 54

Create hard disk for the virtual machine:


Create Virtual Machine
Hard drive
If you wish you can add a virtual hard drive to the new machine. You can either create a new hard drive file or select one from the list or from another location using the folder icon.
If you need a more complex storage set-up you can skip this step and make the changes to the machine settings once the machine is created.
The recommended size of the hard drive is 25.00 GB.
Do not add a virtual hard drive
Create a virtual hard drive now
Use an existing virtual hard drive file
Empty
< Back
Create
Cancel

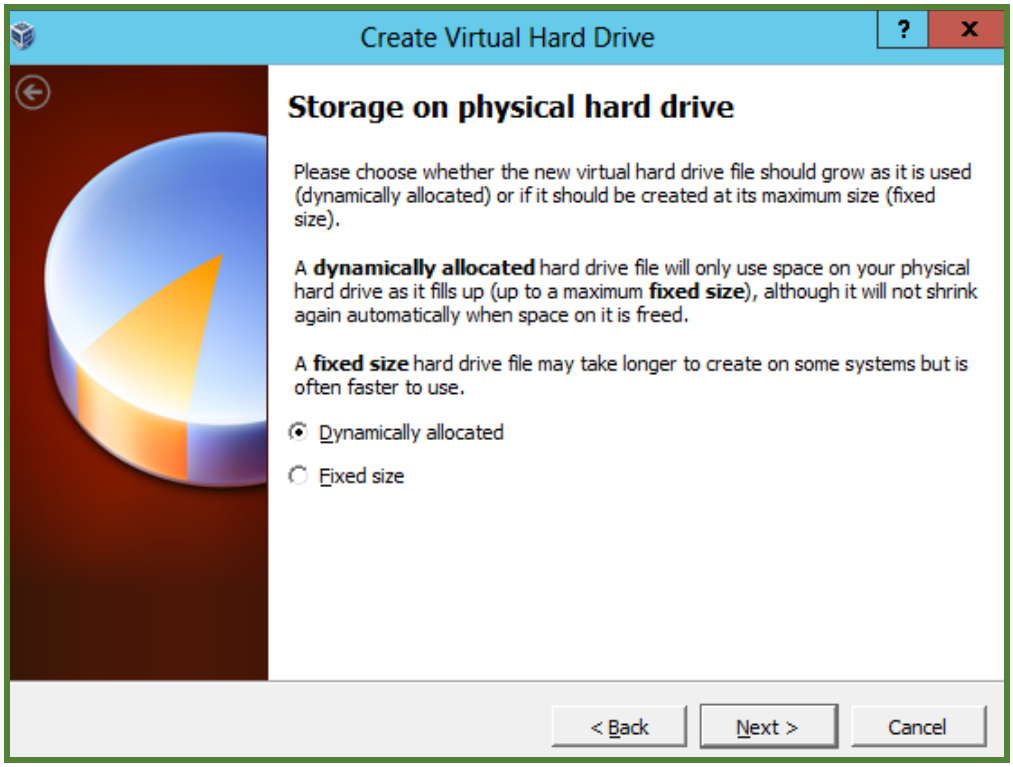
Picture 55

Choose the type of file that you would like to use for the new virtual hard drive, default “VDI” is OK:


Create Virtual Hard Drive
Hard drive file type
Please choose the type of file that you would like to use for the new virtual hard drive. If you do not need to use it with other virtualization software you can leave this setting unchanged.
VDI (VirtualBox Disk Image)
VMDK (Virtual Machine Disk)
VHD (Virtual Hard Disk)
HDD (Parallels Hard Disk)
QED (QEMU enhanced disk)
QCOW (QEMU Copy-On-Write)
Hide Description
< Back
Next >
Cancel

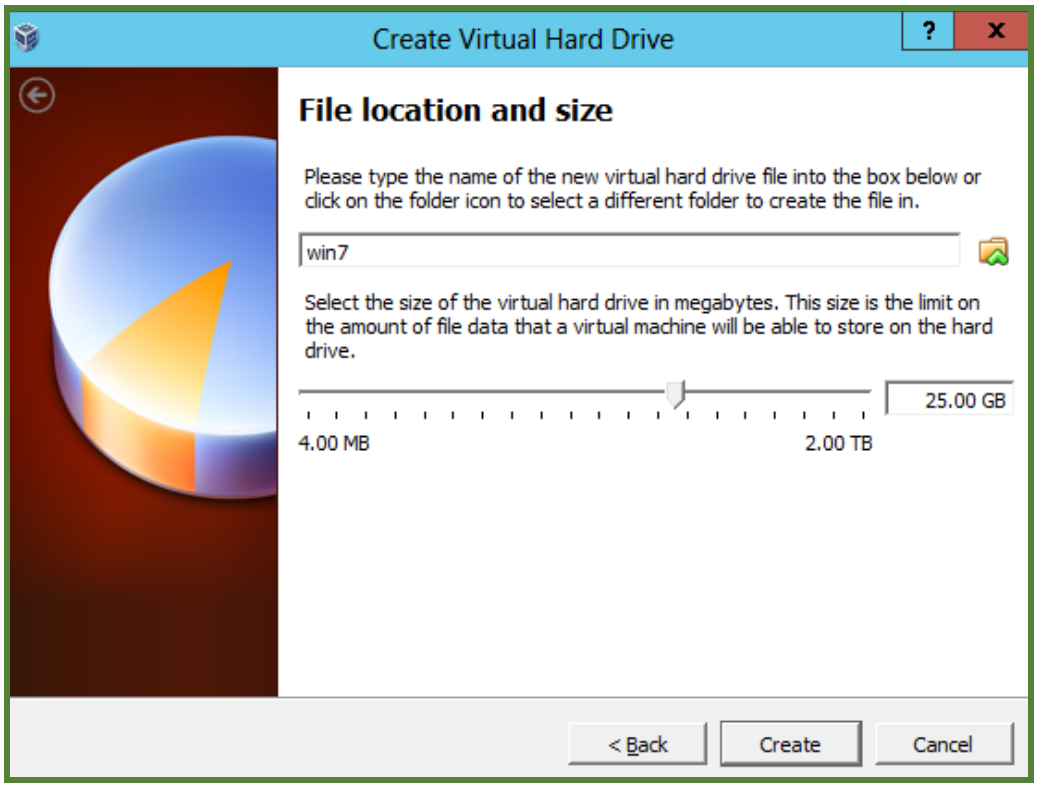
Picture 56

Select the type of virtual hard disk you want to create:


Create Virtual Hard Drive
Storage on physical hard drive
Please choose whether the new virtual hard drive file should grow as it is used (dynamically allocated) or if it should be created at its maximum size (fixed size).
A dynamically allocated hard drive file will only use space on your physical hard drive as it fills up (up to a maximum fixed size), although it will not shrink again automatically when space on it is freed.
A fixed size hard drive file may take longer to create on some systems but is often faster to use.
Dynamically allocated
Fixed size
< Back
Next >
Cancel

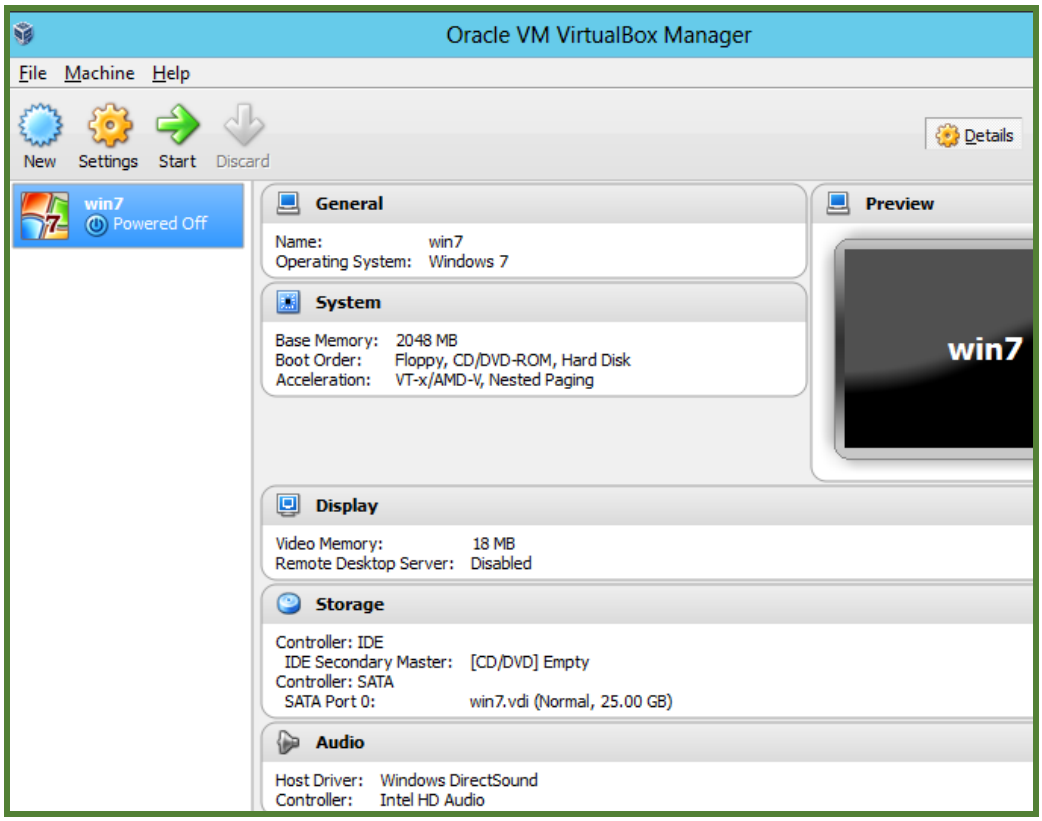
Picture 57

Set the size of hard disk. Then click “Create”:


Create Virtual Hard Drive
File location and size
Please type the name of the new virtual hard drive file into the box below or click on the folder icon to select a different folder to create the file in.
win7
Select the size of the virtual hard drive in megabytes. This size is the limit on the amount of file data that a virtual machine will be able to store on the hard drive.
25.00 GB
4.00 MB
2.00 TB
< Back
Create
Cancel

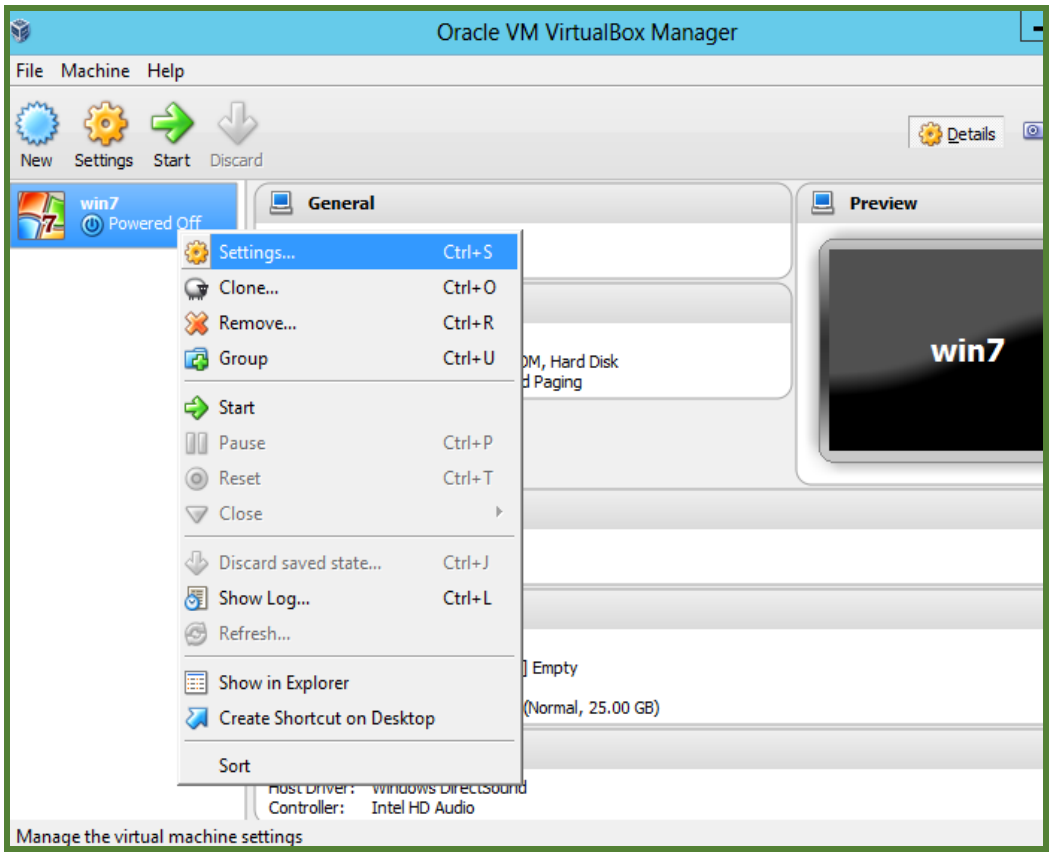
Picture 58

Now, we can see a virtual machine in the list:



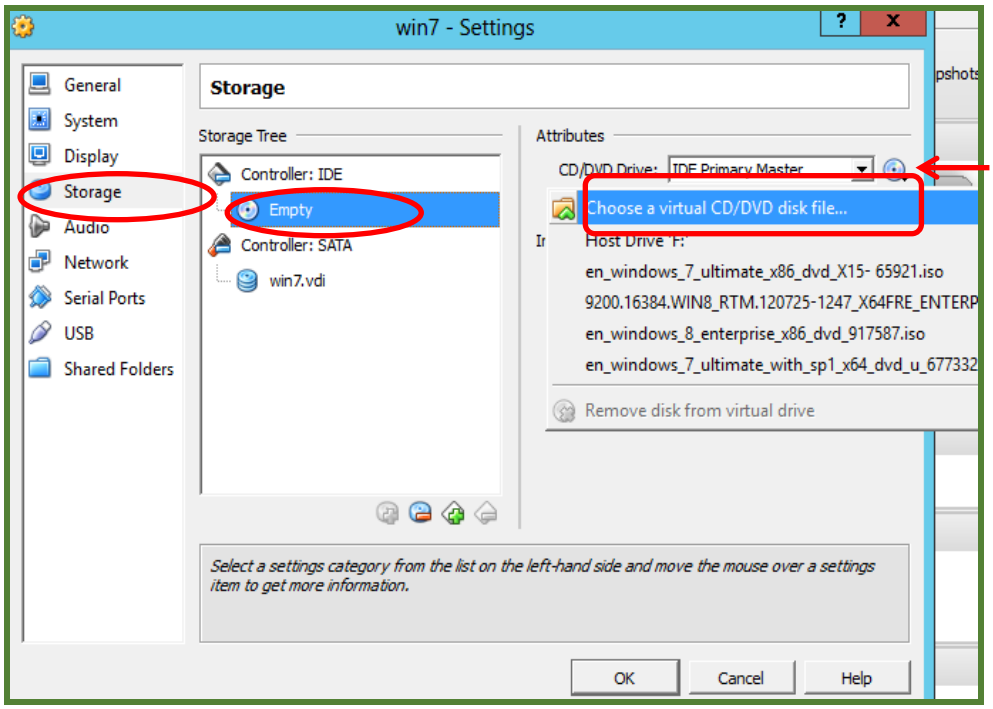

Picture 59

We need to make some changes to the settings of the virtual machine. Click “Settings”:



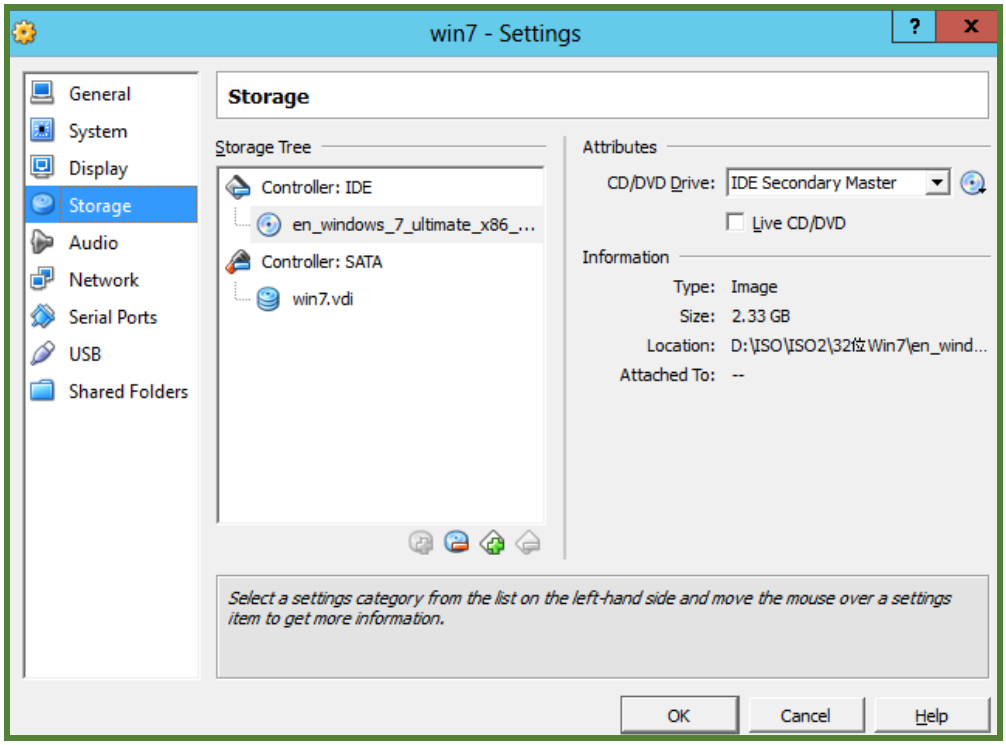

Picture 60

Click “Storage” on the left, and then click “CD drive” in the “Storage Tree”. In the “Attributes”, choose a system ISO image, or put the system CD in CD/DVD drive and choose “Host Drive”:



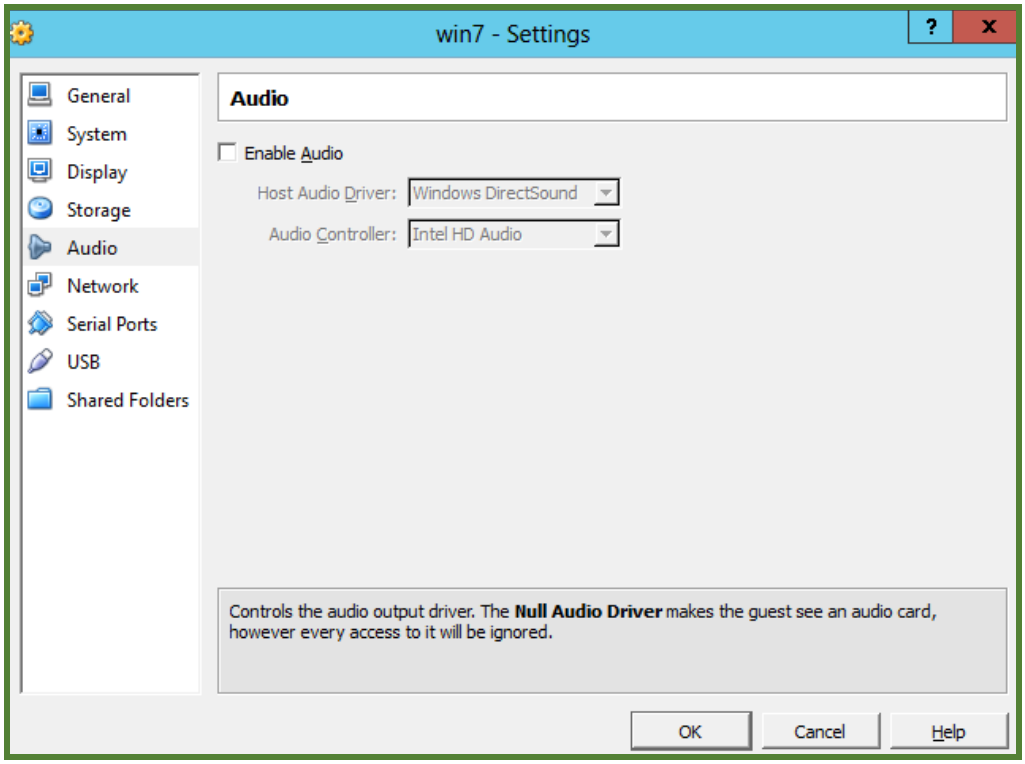

Picture 61

Click “OK”. You can see the ISO image is successfully loaded into to the CD drive:



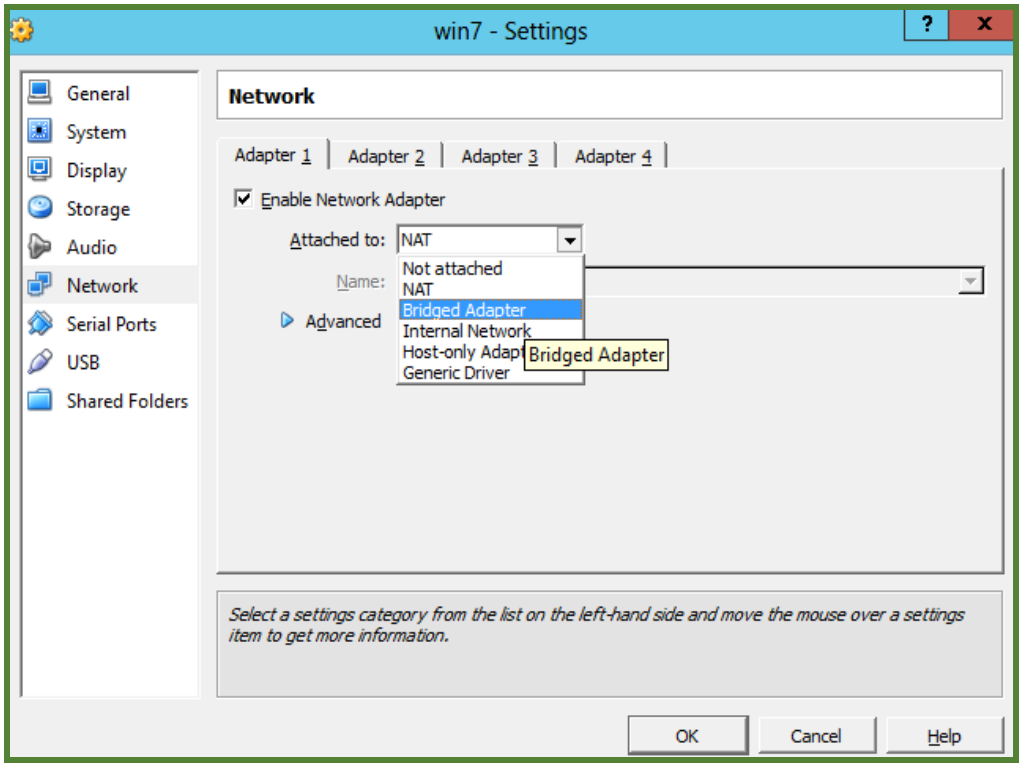

Picture 62

Next step, choose “Audio”，uncheck “Enable Audio”. We will install Diana its own audio device, so no need to enable audio device here:



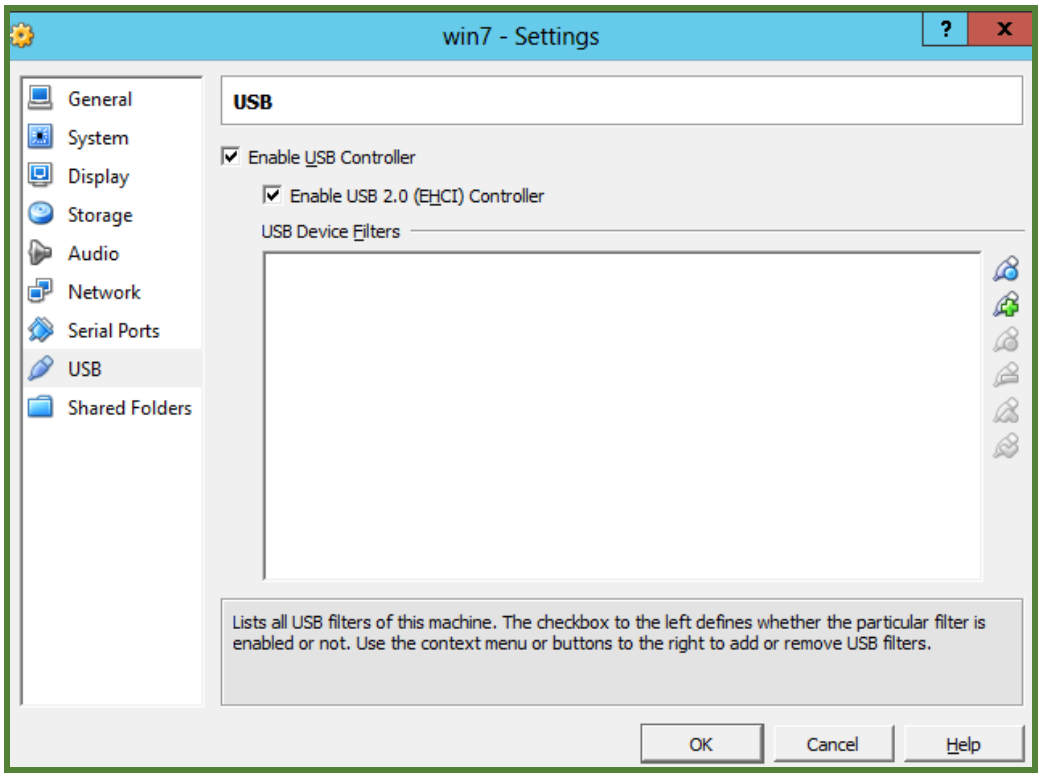

Picture 63

Then go to “Network”, choose “Bridged Adapter” for the virtual machine:




Picture 64

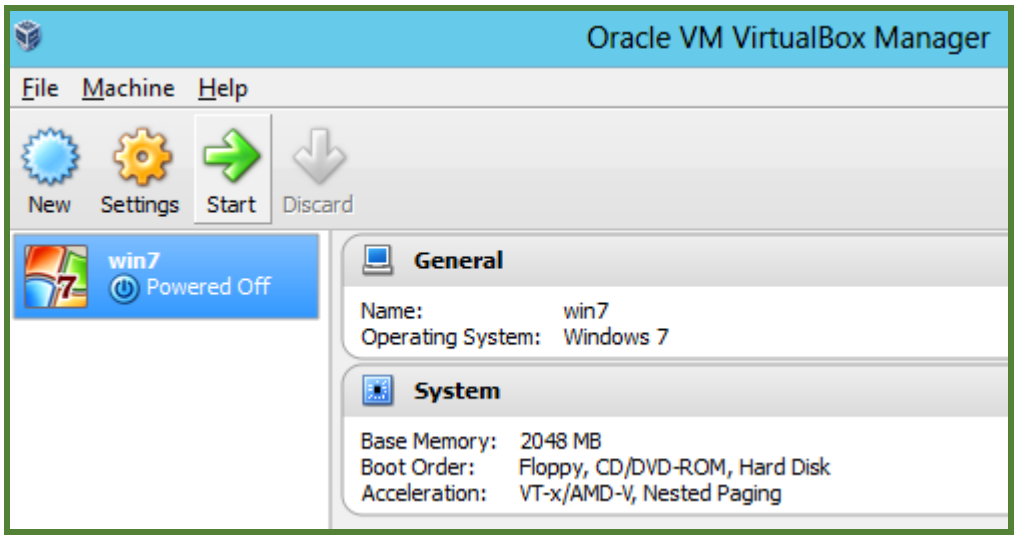
And also in the “USB” option, check “Enable USB controller”. Finally, click “OK” to finish:




Picture 65

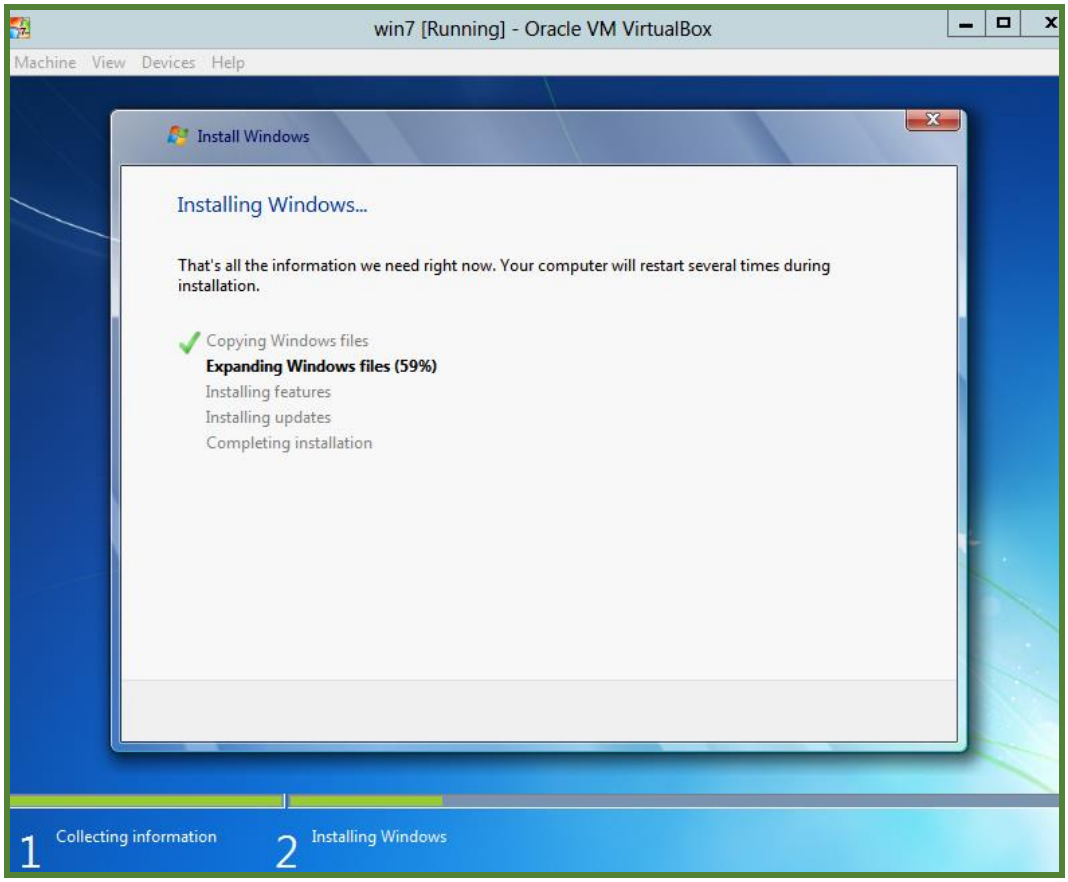
***Note: You can also Enable USB 2.0 controller in order to make the VM support USB2.0 devices.***

Now, we can start the virtual machine and begin the installation of operation system:




Picture 66

The installation process is just the same as you were installing it on a physical PC (Server):


win7 [Running] - Oracle VM VirtualBox
Machine View Devices Help
Install Windows
Installing Windows...
That's all the information we need right now. Your computer will restart several times during installation.
Copying Windows files
Expanding Windows files (59%)
Installing features
Installing updates
Completing installation
1 Collecting information
2 Installing Windows

Picture 67

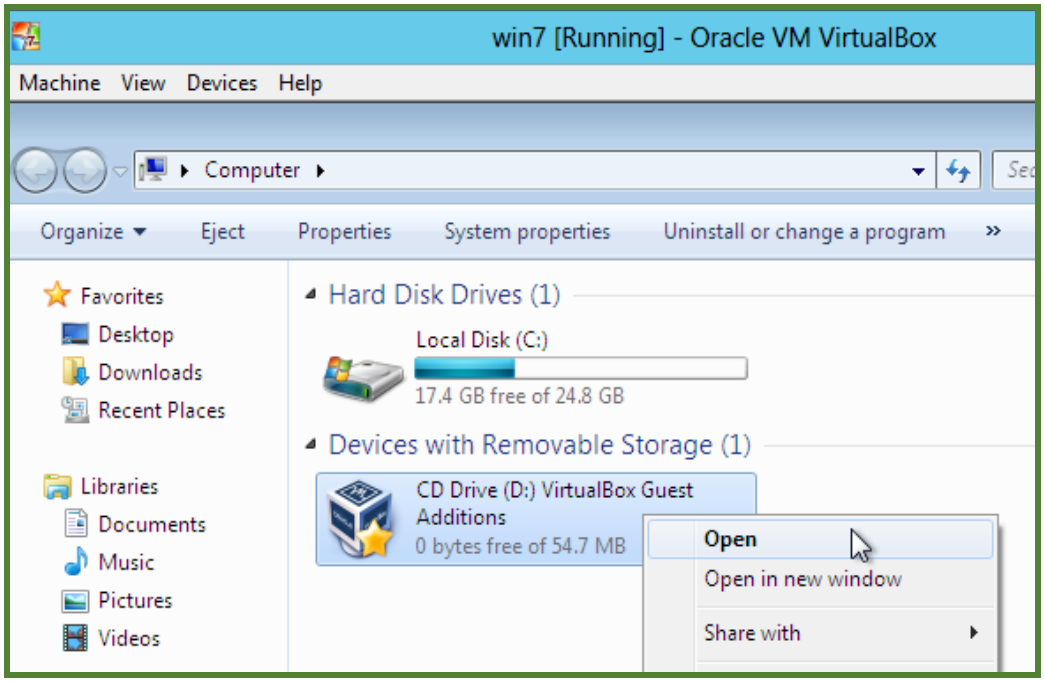
## 5.3 Installing Guest Additions to Virtual Machines

Guest Additions need to be installed to the virtual machine for higher performance, for example, screen resolution, shared folder.

Start the virtual machine we have just finished installing operation system. Click “Devices”, and then choose “Install Guest Additions”. Then the Guest Additions installation ISO image will be mounted to the CD drive of the virtual machine.

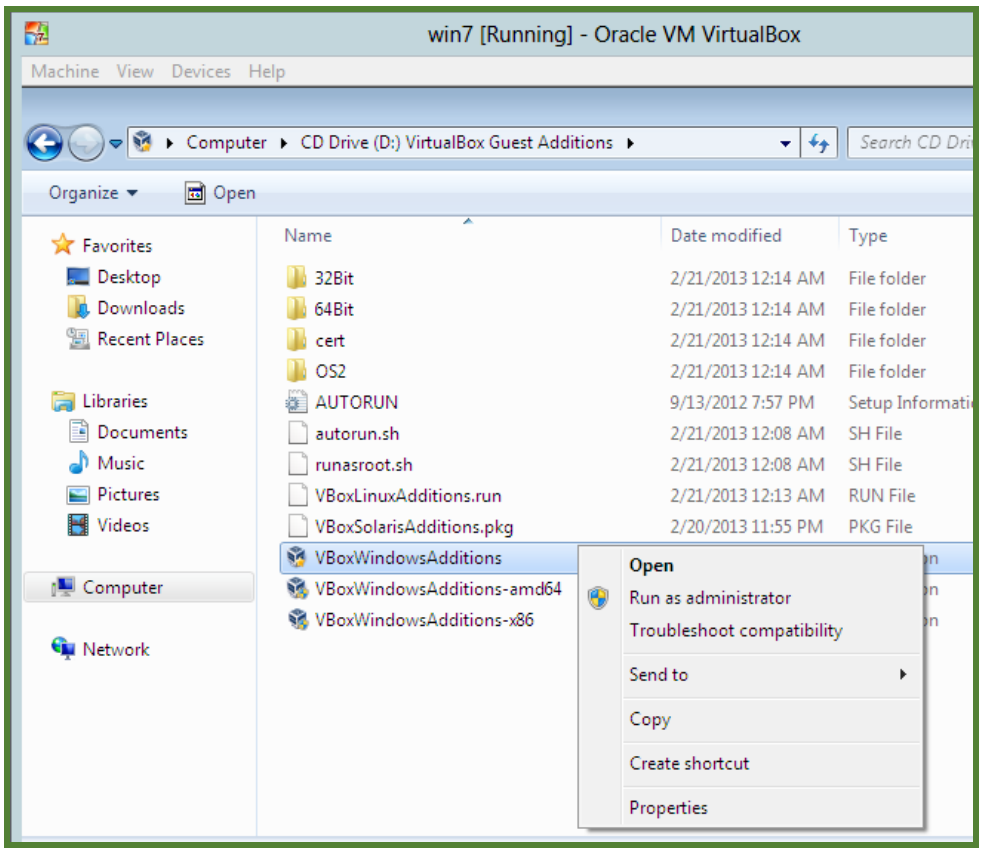
Picture 68

Open the CD Drive of the virtual machine:



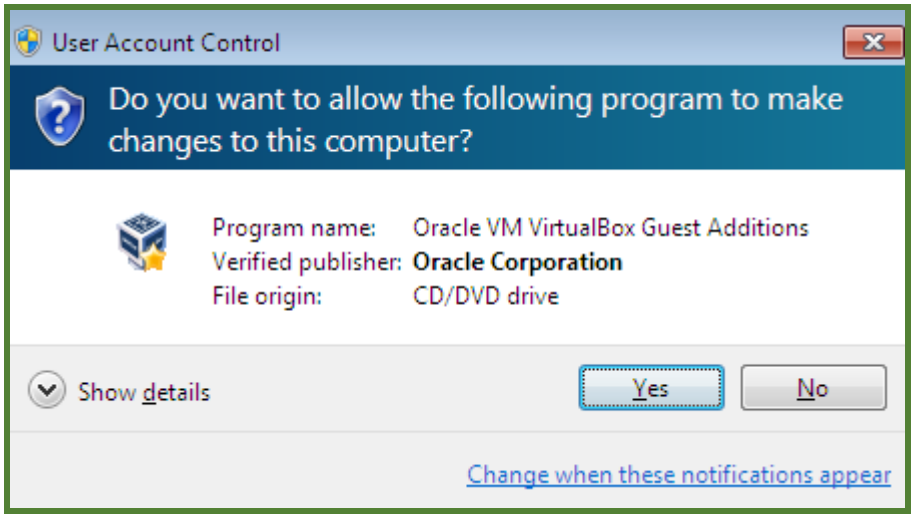

Picture 69

Open VBoxWindowsAdditions:




Picture 70

Click “Yes” to allow the installation:


User Account Control
Do you want to allow the following program to make changes to this computer?
Program name: Oracle VM VirtualBox Guest Additions
Verified publisher: Oracle Corporation
File origin: CD/DVD drive
Show details
Yes
No
Change when these notifications appear

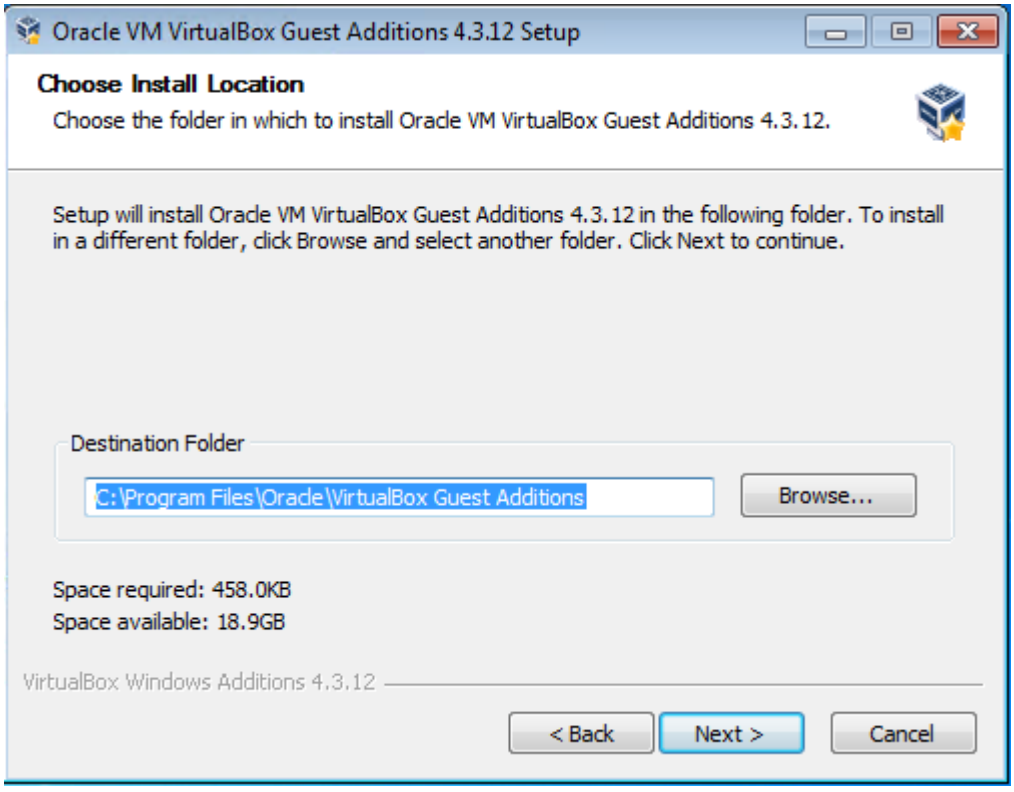
Picture 71

Click “Next”:

Oracle VM VirtualBox Guest Additions 4.3.12 Setup
Welcome to the Oracle VM VirtualBox Guest Additions 4.3.12 Setup Wizard
This wizard will guide you through the installation of Oracle VM VirtualBox Guest Additions 4.3.12.
It is recommended that you close all other applications before starting Setup. This will make it possible to update relevant system files without having to reboot your computer.
Click Next to continue.
Next >
Cancel

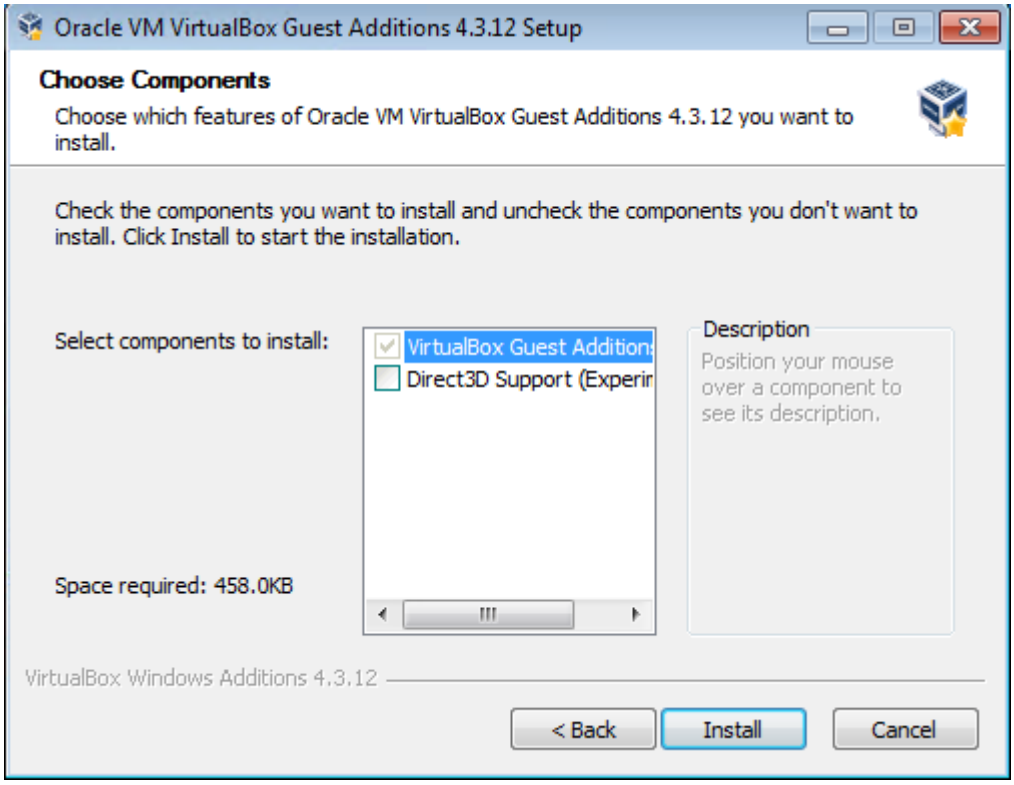
Picture 72

The default destination folder is ok. Click “Next” to continue:


Oracle VM VirtualBox Guest Additions 4.3.12 Setup
Choose Install Location
Choose the folder in which to install Oracle VM VirtualBox Guest Additions 4.3.12.
Setup will install Oracle VM VirtualBox Guest Additions 4.3.12 in the following folder. To install in a different folder, click Browse and select another folder. Click Next to continue.
Destination Folder
C:\Program Files\Oracle\VirtualBox Guest Additions
Browse...
Space required: 458.0KB
Space available: 18.9GB
VirtualBox Windows Additions 4.3.12
< Back
Next >
Cancel

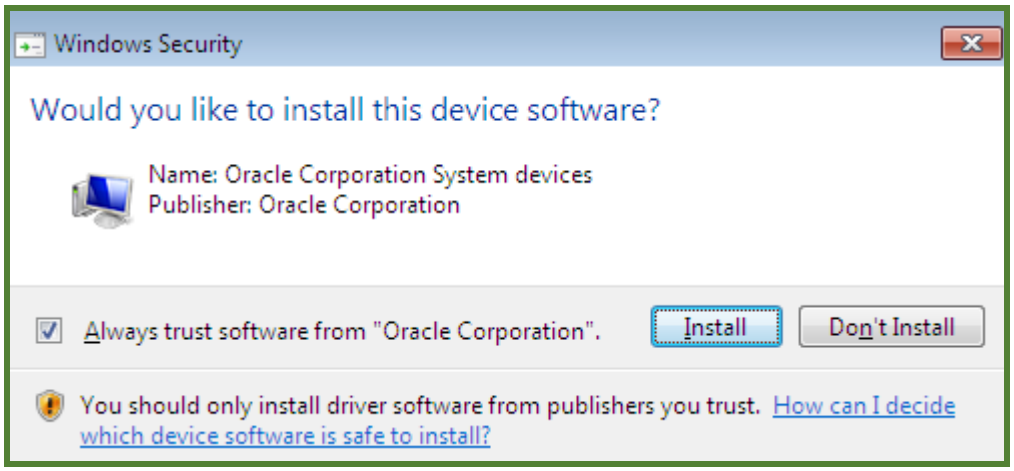
Picture 73

Do not check “Direct3D Support”:


Oracle VM VirtualBox Guest Additions 4.3.12 Setup
Choose Components
Choose which features of Oracle VM VirtualBox Guest Additions 4.3.12 you want to install.
Check the components you want to install and uncheck the components you don't want to install. Click Install to start the installation.
Select components to install:
VirtualBox Guest Additions
Direct3D Support (Experir
Description
Position your mouse over a component to see its description.
Space required: 458.0KB
VirtualBox Windows Additions 4.3.12
< Back
Install
Cancel

Picture 74

Check “Always trust software from ‘Oracle Corporation’” and click Install:


Windows Security
Would you like to install this device software?
Name: Oracle Corporation System devices
Publisher: Oracle Corporation
Always trust software from "Oracle Corporation".
Install
Don't Install
You should only install driver software from publishers you trust. How can I decide which device software is safe to install?

Picture 75

When the installation complete, click “Finish” to reboot the virtual machine:

Oracle VM VirtualBox Guest Additions 4.3.12 Setup
Completing the Oracle VM VirtualBox Guest Additions 4.3.12 Setup Wizard
Your computer must be restarted in order to complete the installation of Oracle VM VirtualBox Guest Additions 4.3.12. Do you want to reboot now?
Reboot now
I want to manually reboot later
< Back
Finish
Cancel

Picture 76

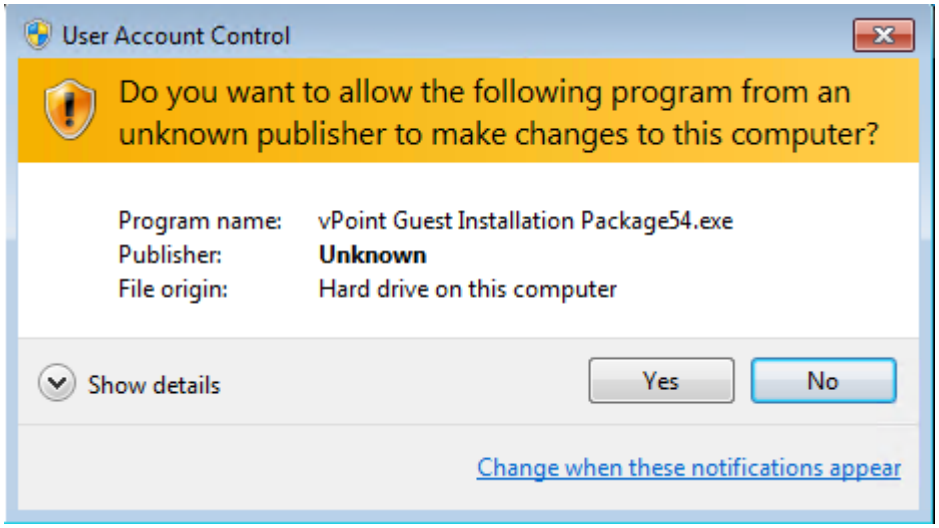
## 5.4 Install vPointGuest to Virtual Machine Operation System

Now, let's install vPointGuest to the virtual machine. The file is called vPointGuestInstallationPackage. Start the virtual machine and log into the system. Double click on "vPoint Guest Installation Package22.exe" (22 is the version number. Please always install the latest version) to run the installation. You can get the installation file from vPoint CD (if there is any) or download from our website. Here is the link: http://www.sundenc.com/support/download/d1/

**Here are the steps for vPointGuest installation:**

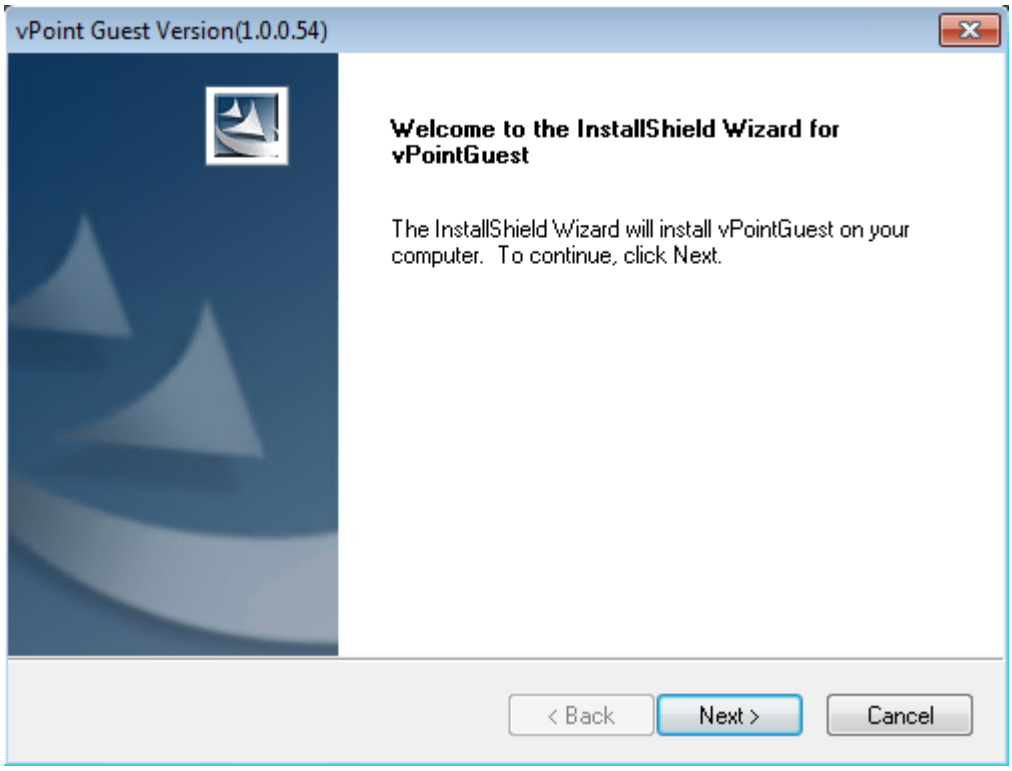
Picture 77

Click on "Yes" to continue if this window pops up:


User Account Control
Do you want to allow the following program from an unknown publisher to make changes to this computer?
Program name: vPoint Guest Installation Package54.exe
Publisher: Unknown
File origin: Hard drive on this computer
Show details
Yes
No
Change when these notifications appear

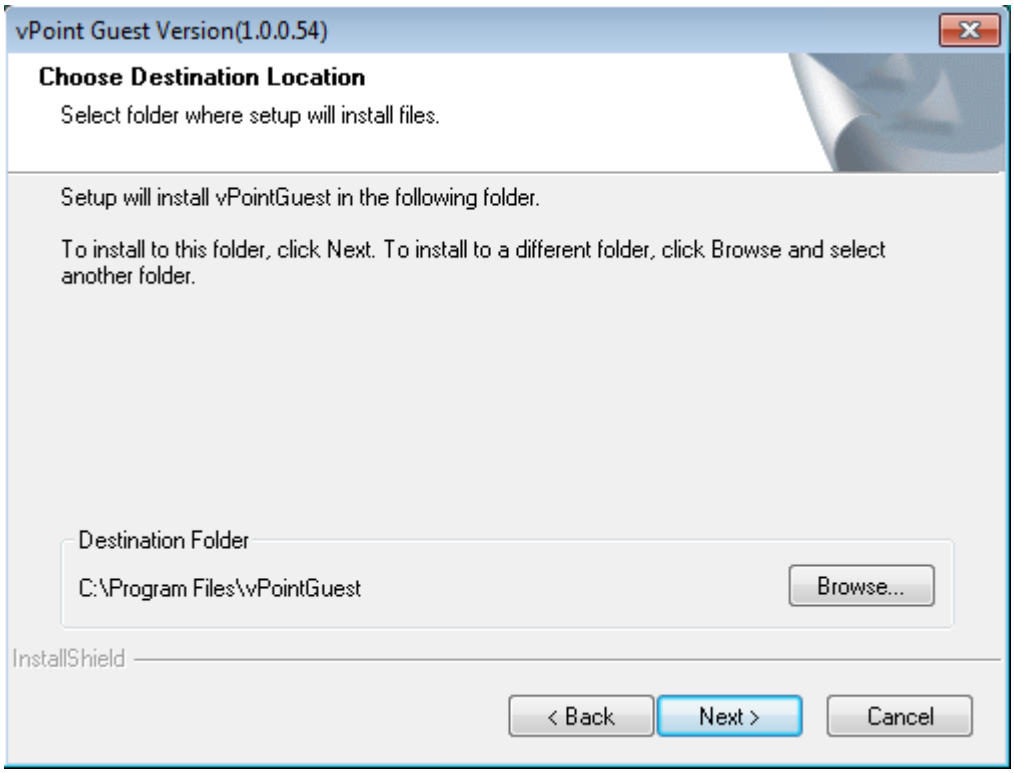
Picture 78

Click on “Next”:


vPoint Guest Version(1.0.0.54)
Welcome to the InstallShield Wizard for vPointGuest
The InstallShield Wizard will install vPointGuest on your computer. To continue, click Next.
< Back
Next >
Cancel

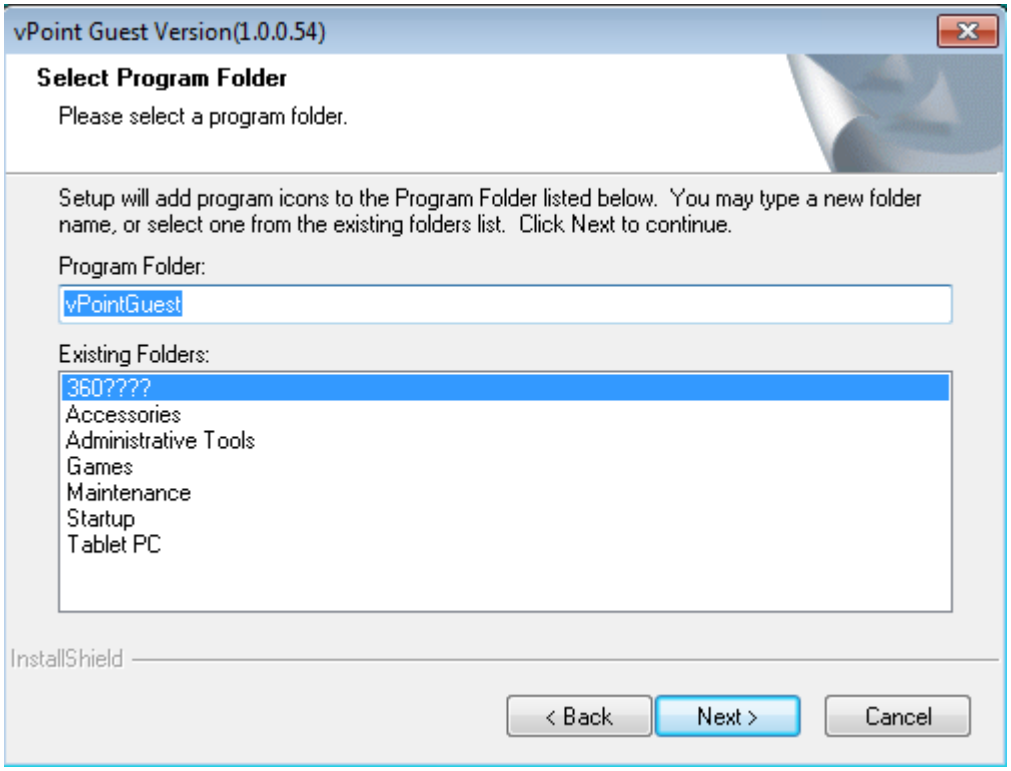
Picture 79

Choose Destination Folder. You can use default settings:


vPoint Guest Version(1.0.0.54)
Choose Destination Location
Select folder where setup will install files.
Setup will install vPointGuest in the following folder.
To install to this folder, click Next. To install to a different folder, click Browse and select another folder.
Destination Folder
C:\Program Files\vPointGuest
Browse...
InstallShield
< Back
Next >
Cancel

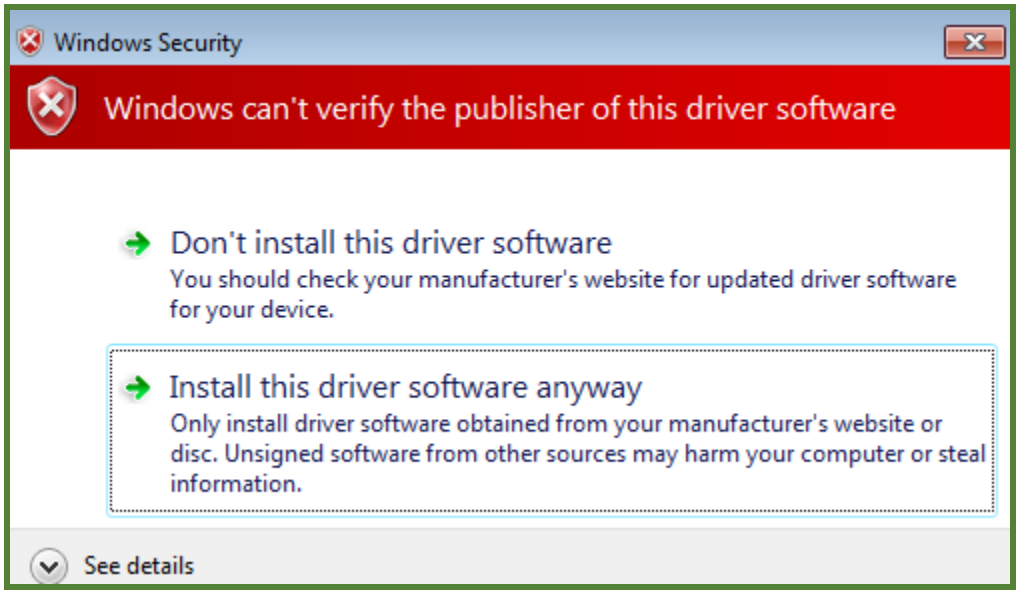
Picture 80

Click on “Next” to continue:



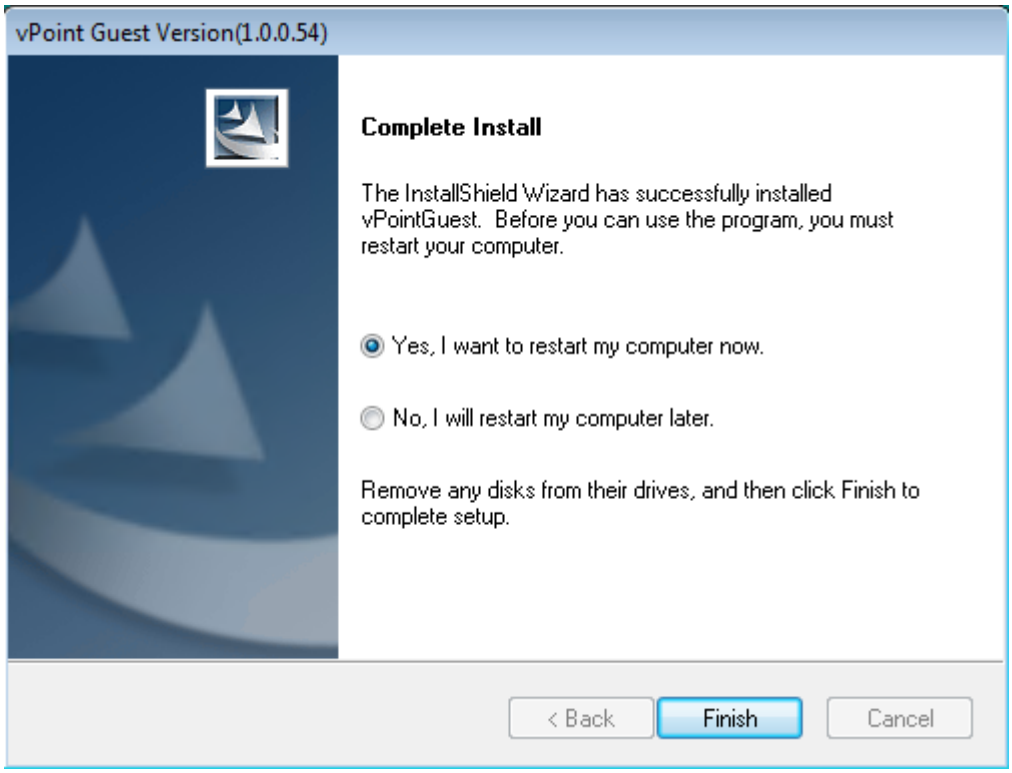

Picture 81

Click “Install this driver software anyway” if this window pops up:


Windows Security
Windows can't verify the publisher of this driver software
Don't install this driver software
You should check your manufacturer's website for updated driver software for your device.
Install this driver software anyway
Only install driver software obtained from your manufacturer's website or disc. Unsigned software from other sources may harm your computer or steal information.
See details

Picture 82

Click “Finish” to restart the VM:


vPoint Guest Version(1.0.0.54)
Complete Install
The InstallShield Wizard has successfully installed vPointGuest. Before you can use the program, you must restart your computer.
Yes, I want to restart my computer now.
No, I will restart my computer later.
Remove any disks from their drives, and then click Finish to complete setup.
< Back
Finish
Cancel

Picture 83

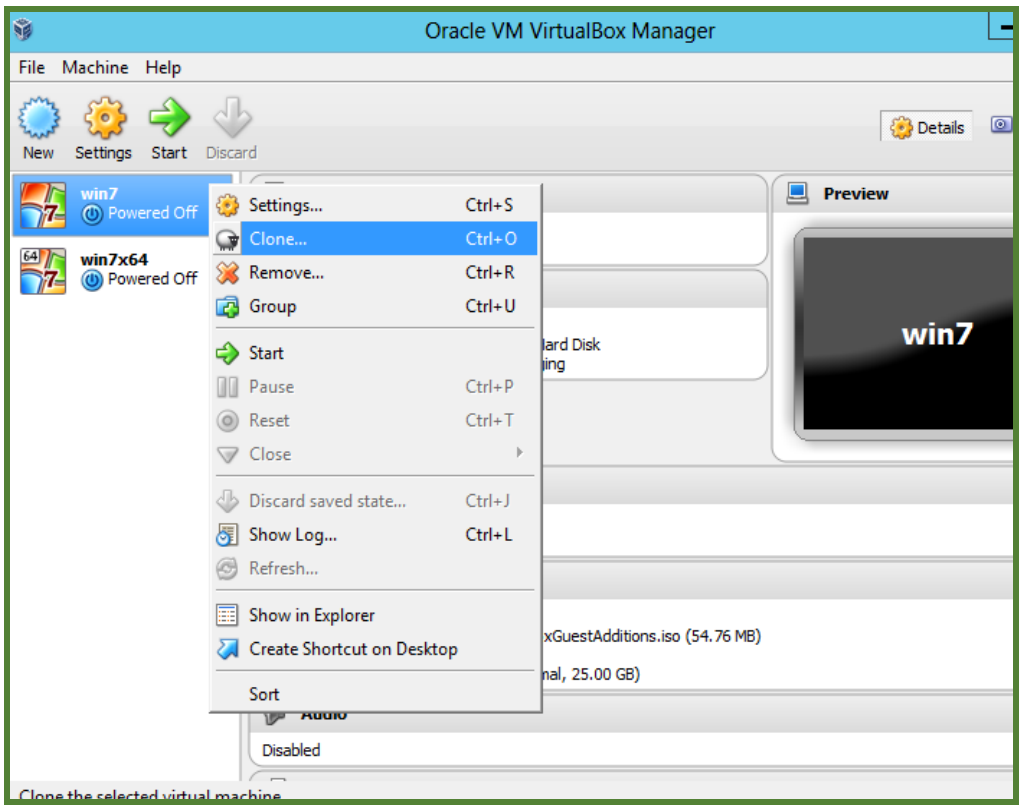
## 5.5 The Clone of Virtual Machines

More often, we will be using more than 1 copy of same Operation System, say Windows 7, on the Host PC (server). One quick way to have multiple copies of Windows 7 is to clone it. When you have finished installing Windows 7 and necessary configuration, we can move on to clone it.

There are two way to clone virtual machines: VirtualBox clone function or export/import

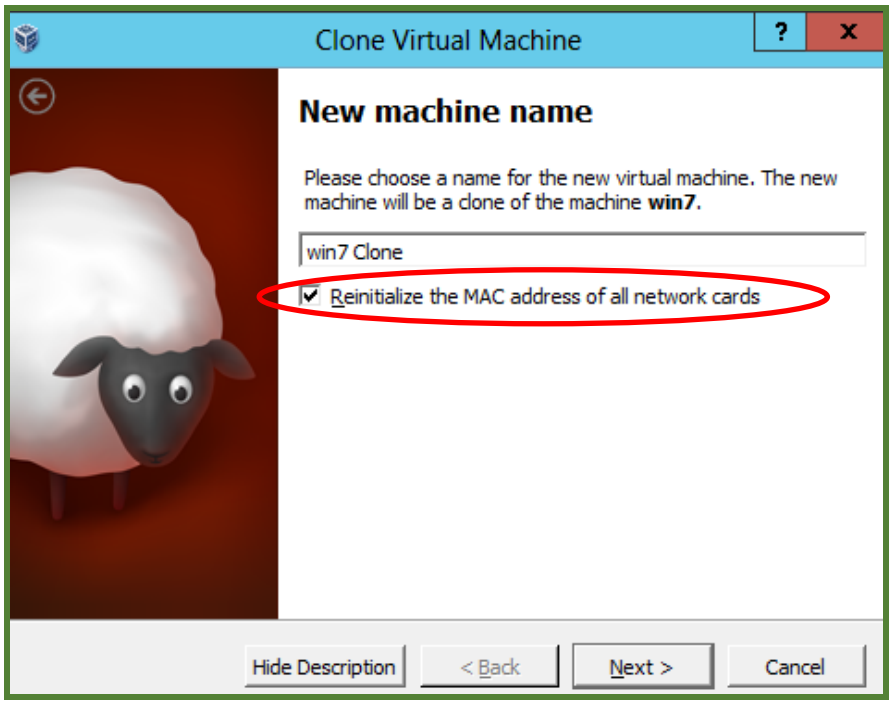
### VirtualBox Clone function

Open Oracle VM VirtualBox Manager, make sure the VM you want to clone is powered off, choose that VM, right click and choose “Clone”:



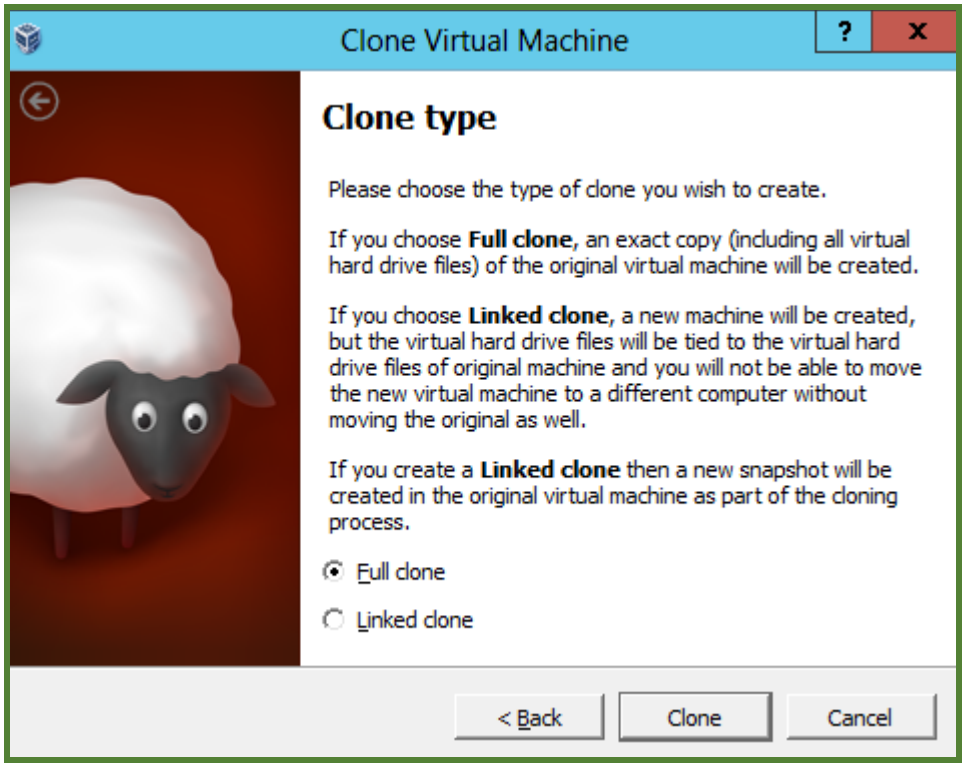

Picture 84

Input the name for the new virtual machine, and check “Reinitialize the MAC address of all network cards” to avoid the IP address conflict, then click “Next”:


Clone Virtual Machine
New machine name
Please choose a name for the new virtual machine. The new machine will be a clone of the machine win7.
win7 Clone
Reinitialize the MAC address of all network cards
Hide Description
< Back
Next >
Cancel

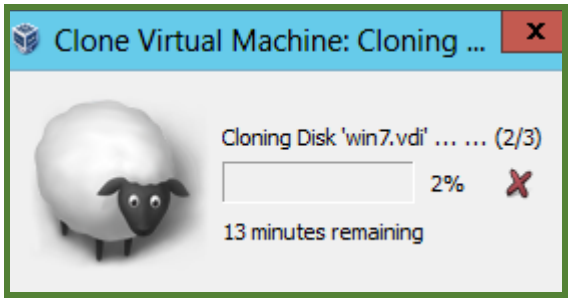
Picture 85

Choose “Full clone”, and click “Clone” to start:


Clone Virtual Machine
Clone type
Please choose the type of clone you wish to create.
If you choose Full clone, an exact copy (including all virtual hard drive files) of the original virtual machine will be created.
If you choose Linked clone, a new machine will be created, but the virtual hard drive files will be tied to the virtual hard drive files of original machine and you will not be able to move the new virtual machine to a different computer without moving the original as well.
If you create a Linked clone then a new snapshot will be created in the original virtual machine as part of the cloning process.
Full clone
Linked clone
< Back
Clone
Cancel

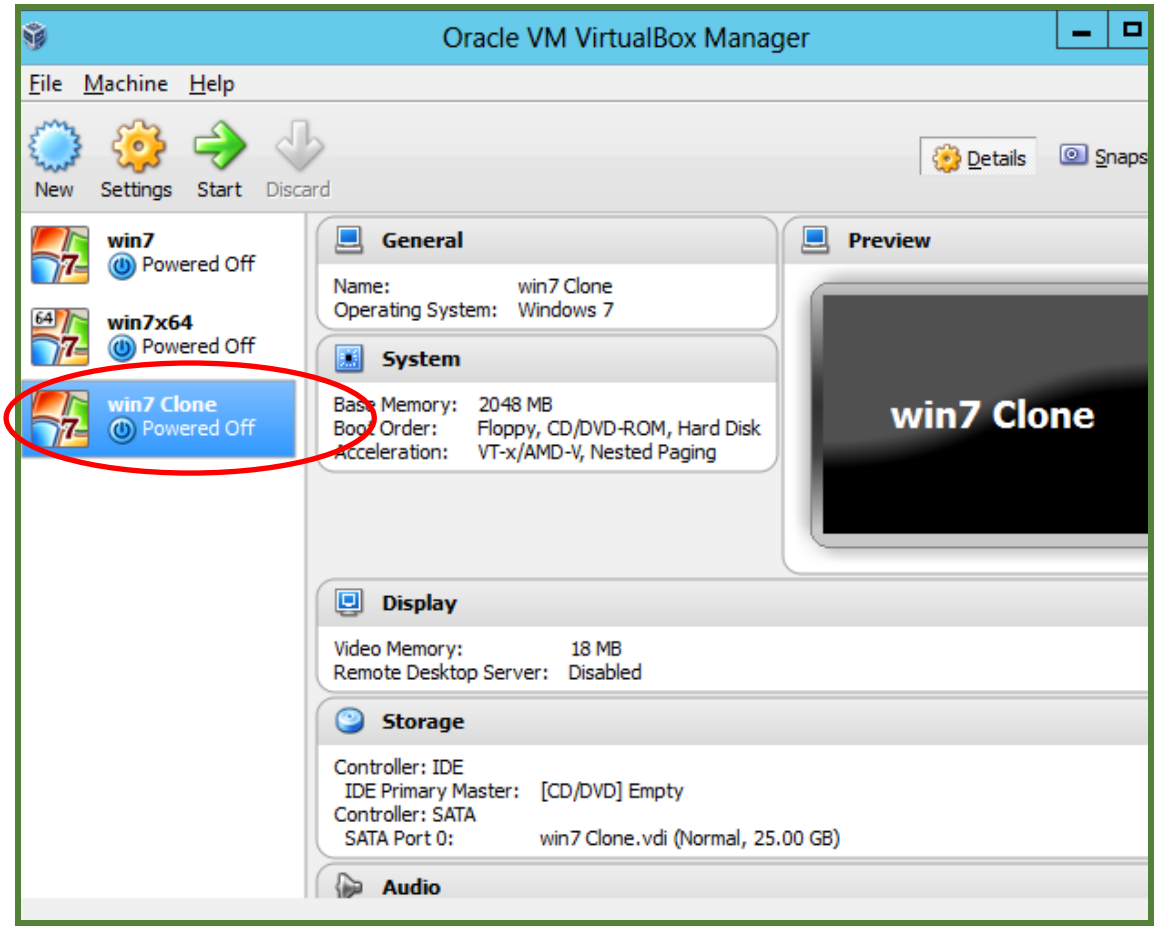
Picture 86

Clone starts:




Picture 87

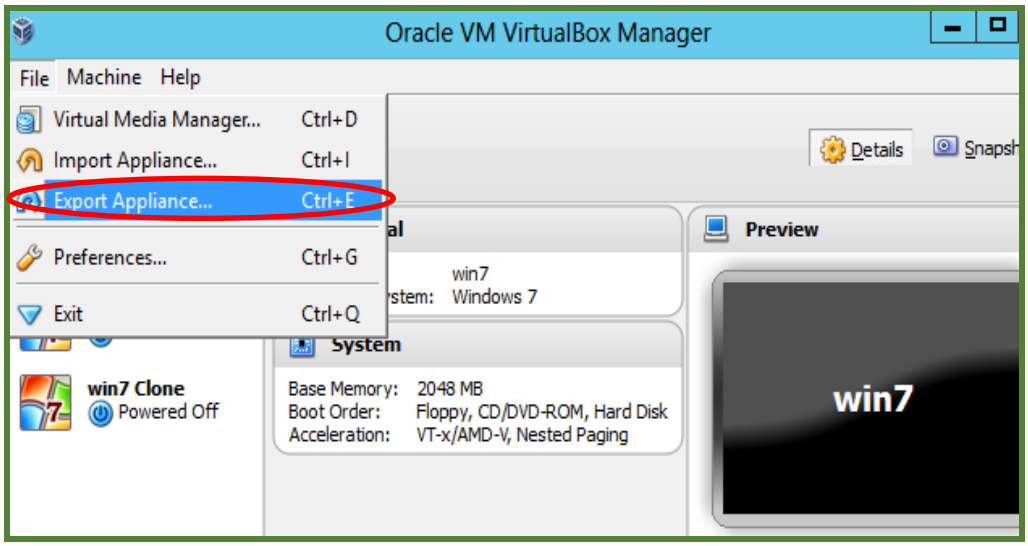
After the Clone finished, you can find the new virtual machine in the list:




Picture 88

## VirtualBox export/import

Open Oracle VM VirtualBox Manager, make sure the VM that you want to export is powered off, click “File”, and choose “Export Appliance”:




Picture 89

Select the virtual machines that you want to export. Picture 96:

Export Virtual Appliance
Virtual machines to export
Please select the virtual machines that should be added to the appliance. You can select more than one. Please note that these machines have to be turned off before they can be exported.
win7
win7 Clone
win7x64
Hide Description
< Back
Next >
Cancel

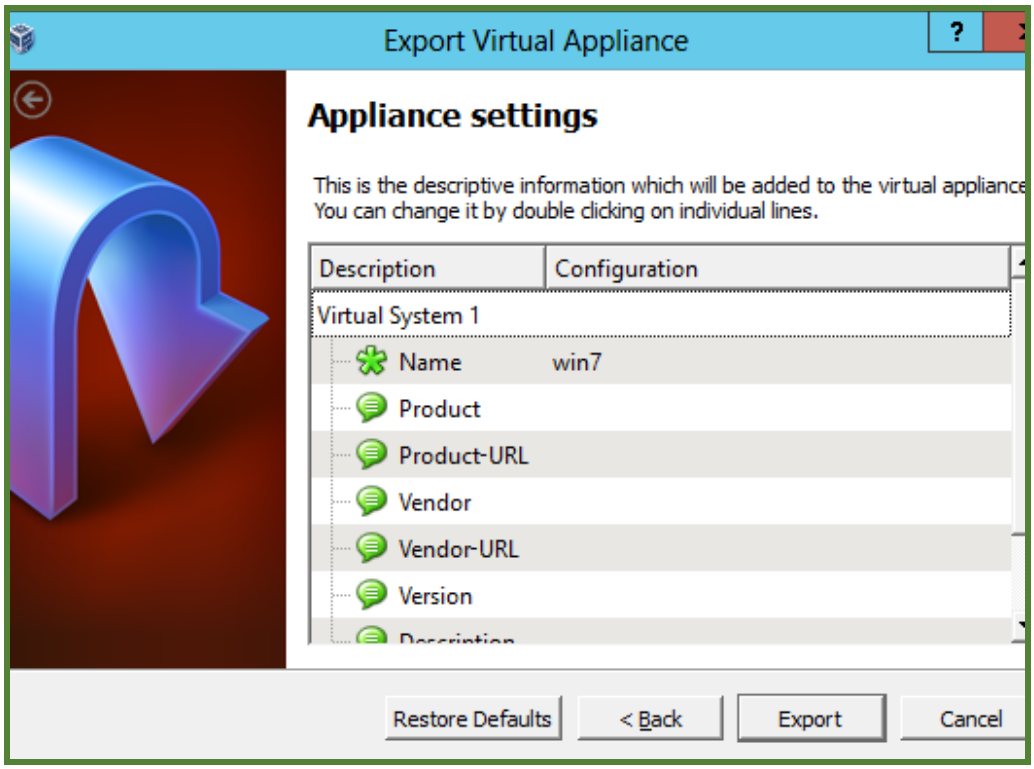
Picture 90

Choose a destination folder to export the virtual machine

Export Virtual Appliance
Appliance settings
Please choose a filename to export the OVF/OVA to.
If you use an ova extension, then all the files will be combined into one Open Virtualization Format Archive.
If you use an ovf extension, several files will be written separately.
Other extensions are not allowed.
File: C:\Users\Administrator\Documents\win7.ova
Choose...
Write legacy OVF 0.9
Write Manifest file
< Back
Next >
Cancel

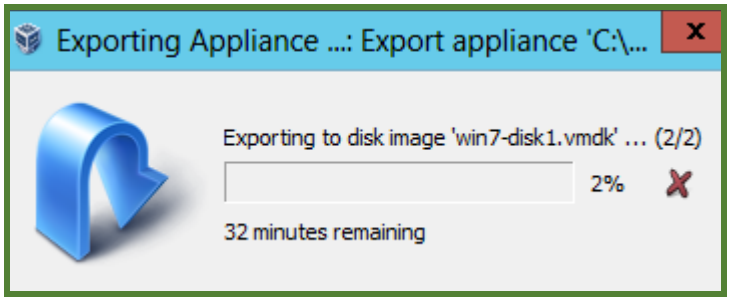
Picture 91

Click “Export” to start:



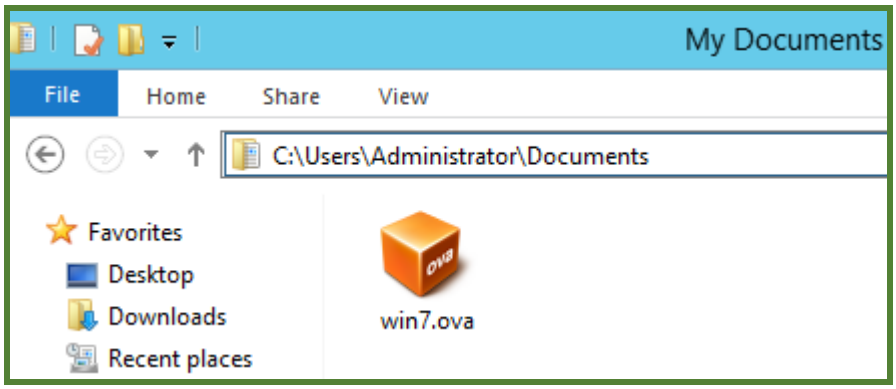

Picture 92

Exporting:



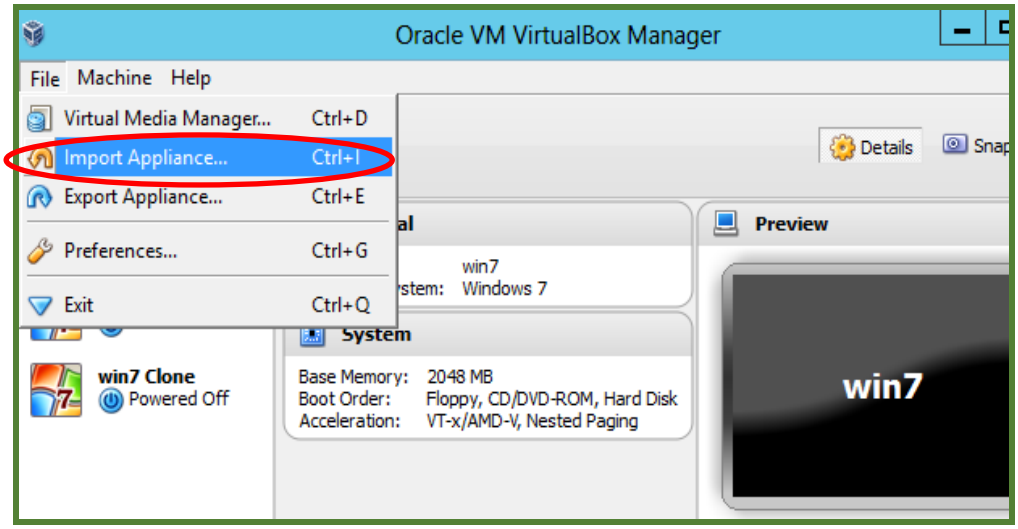

Picture 93

After the exporting finished, we can find a win7.ova file in C:\Users\Administrator\Documents. That is the Virtual Machine we have exported:



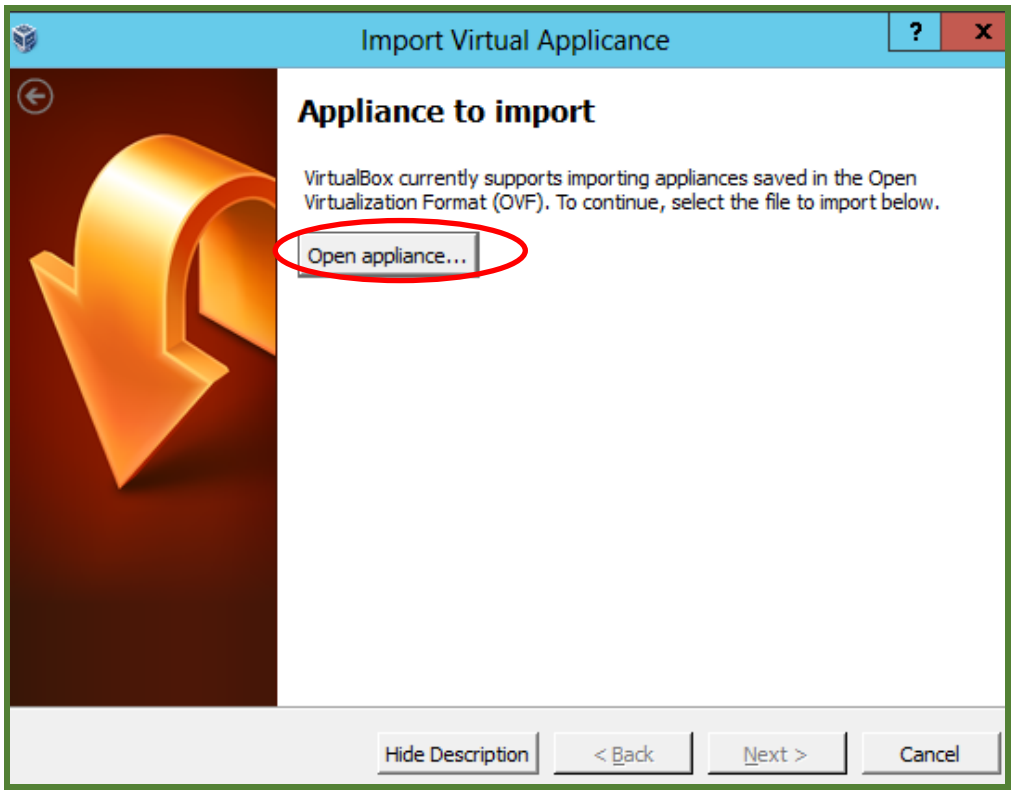

Picture 94

Now we can use the ova file to import virtual machine. Open VirtualBox Manager, click “File” and choose “Import Appliance”:



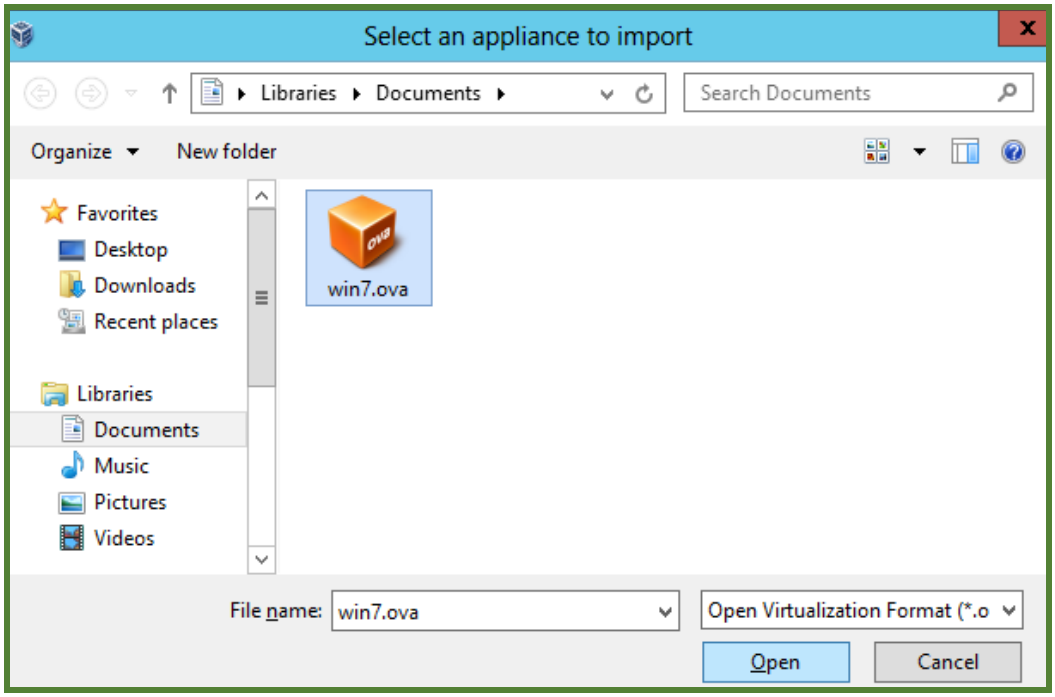

Picture 95

Click “Open appliance”:


Import Virtual Applicance
Appliance to import
VirtualBox currently supports importing appliances saved in the Open Virtualization Format (OVF). To continue, select the file to import below.
Open appliance...
Hide Description
< Back
Next >
Cancel

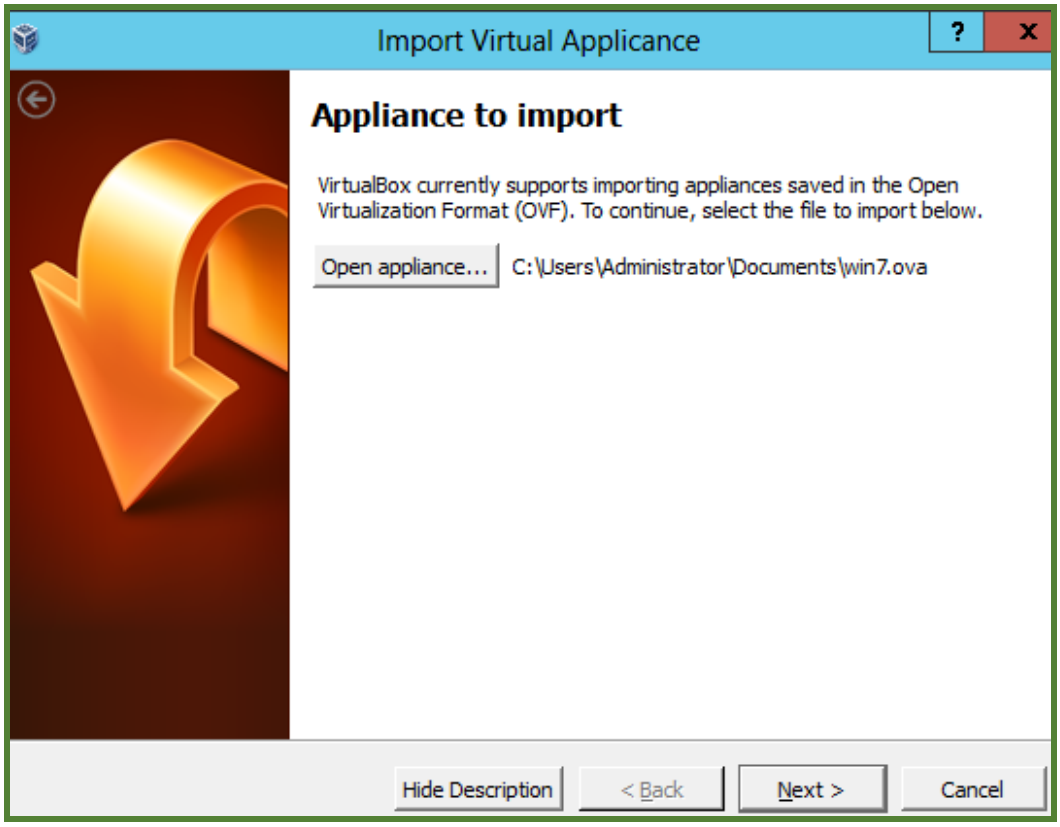
Picture 96

Browse the folder that we have export the ova file to, select win7.ova and click “Open”:



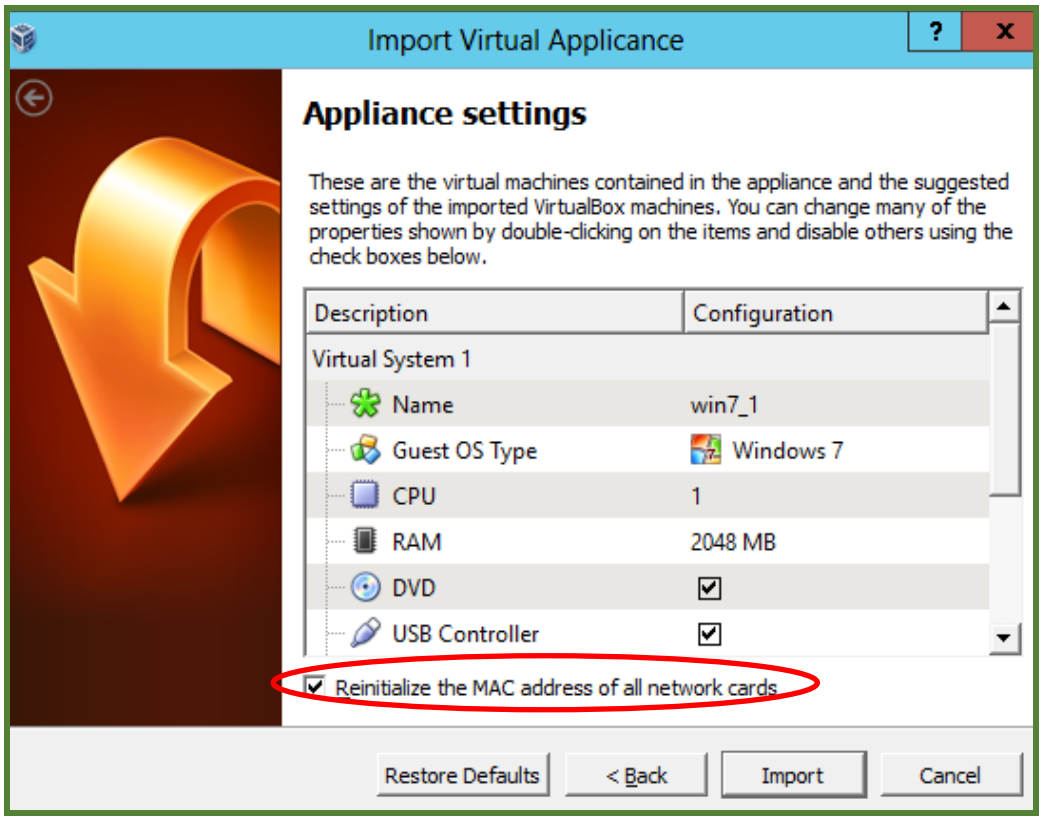

Picture 97

After select the ova file, click “Next”:


Import Virtual Applicance
Appliance to import
VirtualBox currently supports importing appliances saved in the Open Virtualization Format (OVF). To continue, select the file to import below.
Open appliance...
C:\Users\Administrator\Documents\win7.ova
Hide Description
< Back
Next >
Cancel

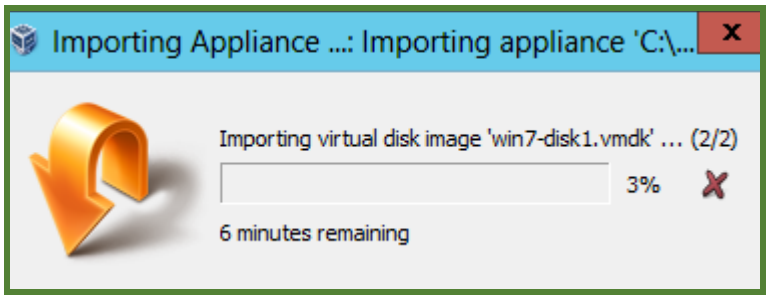
Picture 98

In the Appliance settings, check the “Reinitialize the MAC address of all network cards” to avoid the IP address conflict. You can also make change to other settings of virtual machine like Name, CPU, etc. click “Import” to start importing:



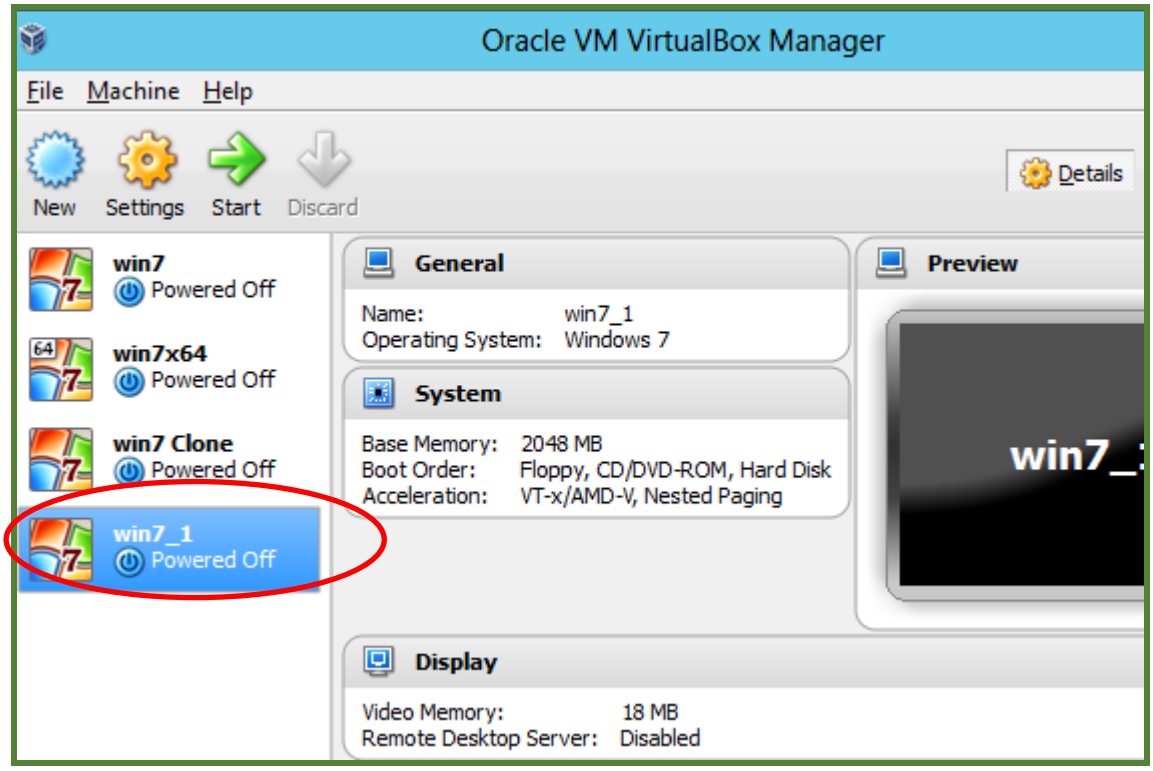

Picture 99

Importing:




Picture 100

When the importing finished, we can find the new virtual machine “win7_1” in the list:

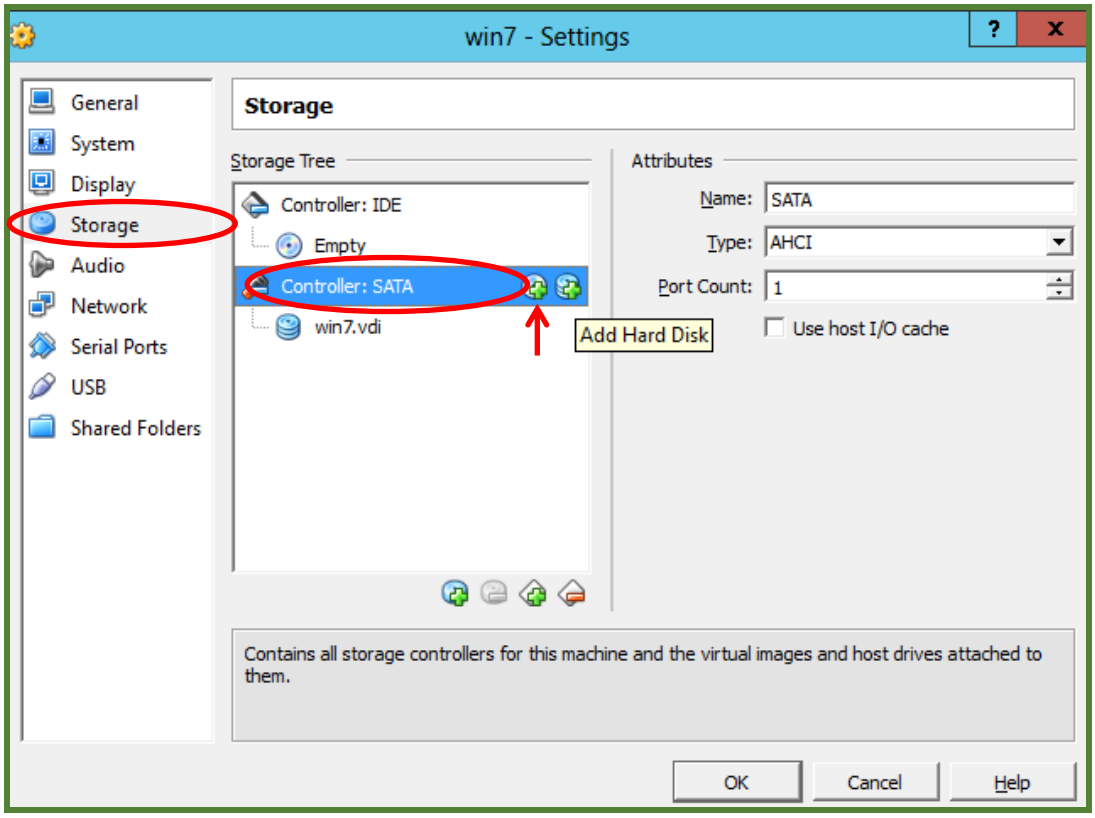



Picture 101

## 5.6 Add more virtual hard drives to virtual machine

In production environment, we may need more storage space (more often hard drives) to store user data. In the previous steps, we have set up one virtual hard drive for the virtual machine, which has been used by the operation system (drive C). So, adding more storage space means we need to add at least one more virtual hard drive to this virtual machine so that we can have storage space for user data. To store user data in a different virtual hard drive instead of drive C is also a safety measure to protect the user data from damages as caused by system failure or a snapshot restoring operation.

Click on the virtual machine for which you are going to add virtual hard drive, then “Settings”, “Storage”, “Controller: SATA”, click “ ” to add hard disk:



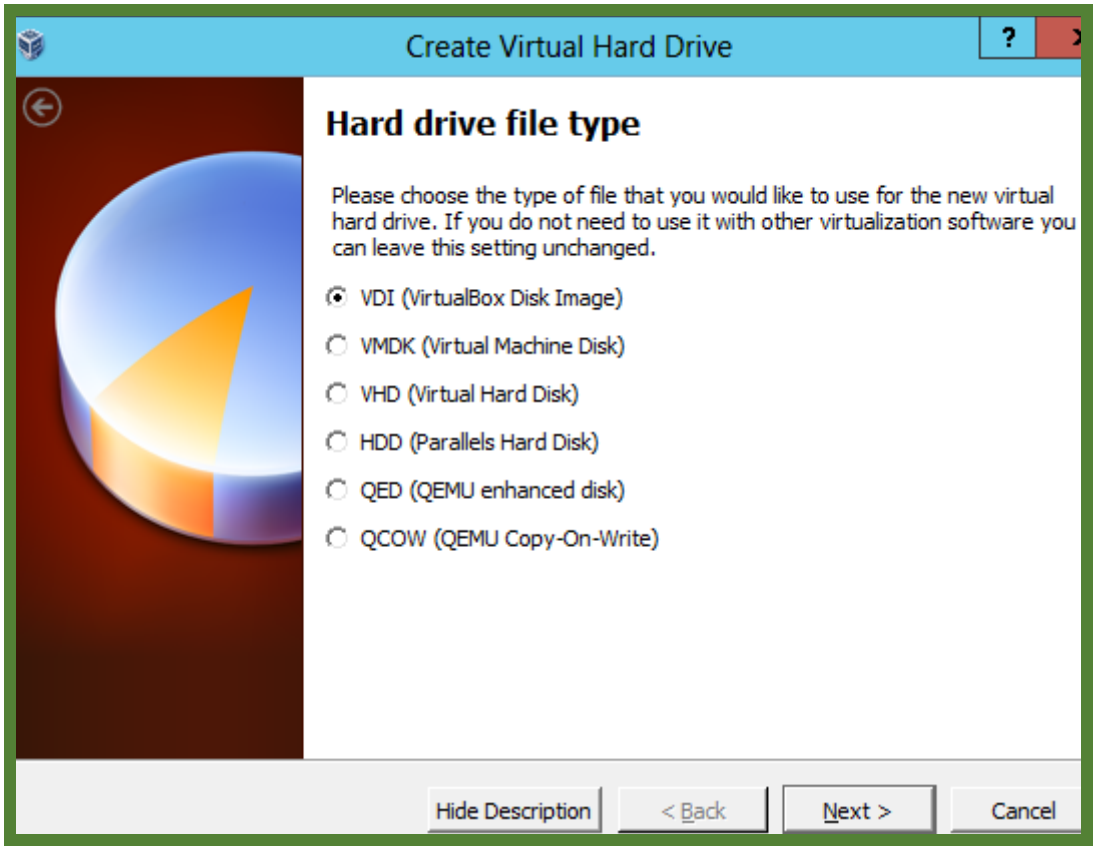

Picture 102

Choose “Create new disk”:

VirtualBox - Question
You are about to add a virtual hard disk to controller SATA.
Would you like to create a new, empty file to hold the disk contents or select an existing one?
Create new disk
Choose existing disk
Cancel

Picture 103

Choose the type of the new virtual hard drive.  The default VDI is OK:


Create Virtual Hard Drive
Hard drive file type
Please choose the type of file that you would like to use for the new virtual hard drive. If you do not need to use it with other virtualization software you can leave this setting unchanged.
VDI (VirtualBox Disk Image)
VMDK (Virtual Machine Disk)
VHD (Virtual Hard Disk)
HDD (Parallels Hard Disk)
QED (QEMU enhanced disk)
QCOW (QEMU Copy-On-Write)
Hide Description
< Back
Next >
Cancel

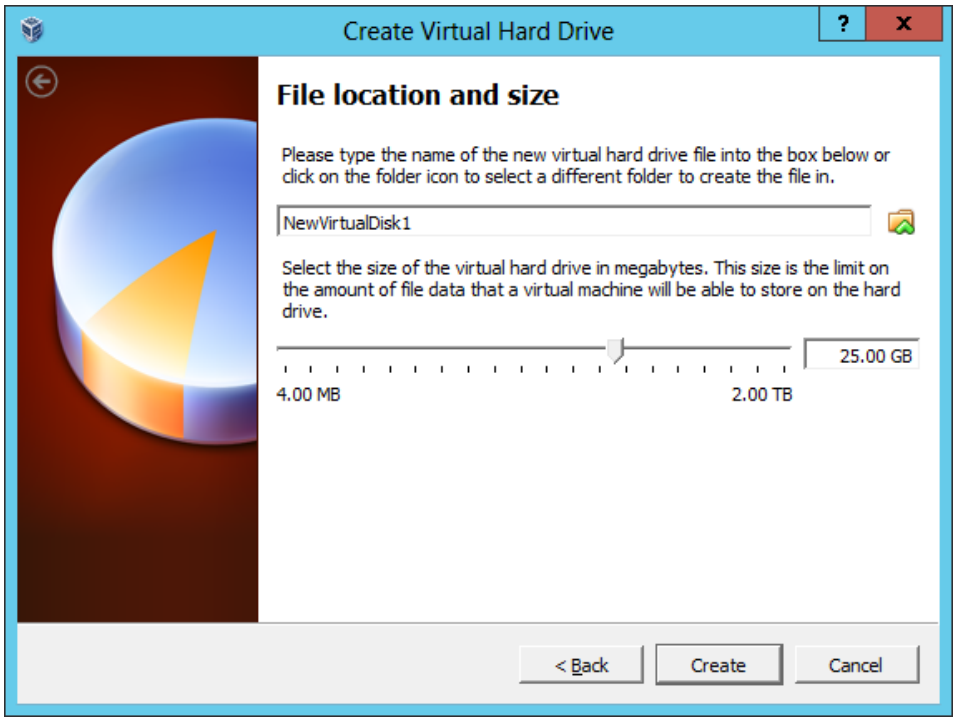
Picture 104

Select the type of virtual hard disk you want to create:

Create Virtual Hard Drive
Storage on physical hard drive
Please choose whether the new virtual hard drive file should grow as it is used (dynamically allocated) or if it should be created at its maximum size (fixed size).
A dynamically allocated hard drive file will only use space on your physical hard drive as it fills up (up to a maximum fixed size), although it will not shrink again automatically when space on it is freed.
A fixed size hard drive file may take longer to create on some systems but is often faster to use.
Dynamically allocated
Fixed size
< Back
Next >
Cancel

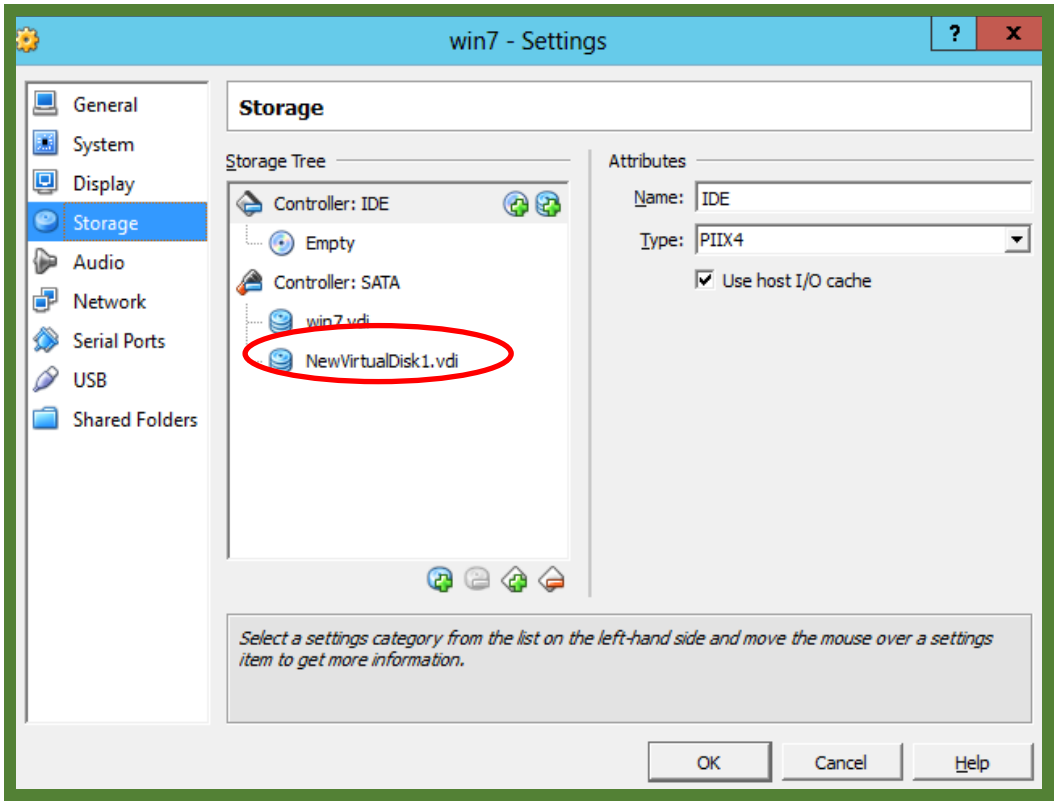
Picture 105

Set the size of hard disk. Then click “Create”:


Create Virtual Hard Drive
File location and size
Please type the name of the new virtual hard drive file into the box below or click on the folder icon to select a different folder to create the file in.
NewVirtualDisk1
Select the size of the virtual hard drive in megabytes. This size is the limit on the amount of file data that a virtual machine will be able to store on the hard drive.
25.00 GB
4.00 MB
2.00 TB
< Back
Create
Cancel

Picture 106

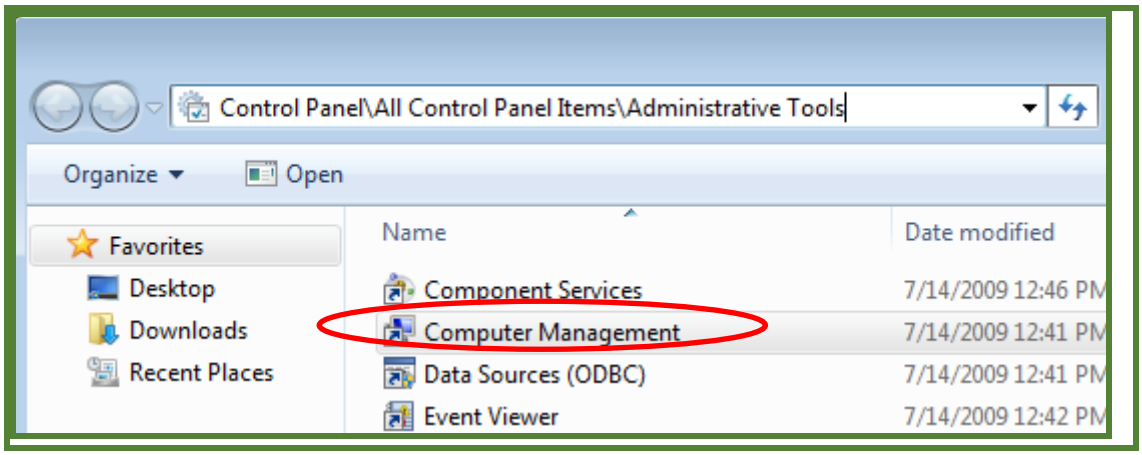
When it is done, you can see a new hard drive is attached to the SATA Controller. Click “OK” to close this window:




Picture 107

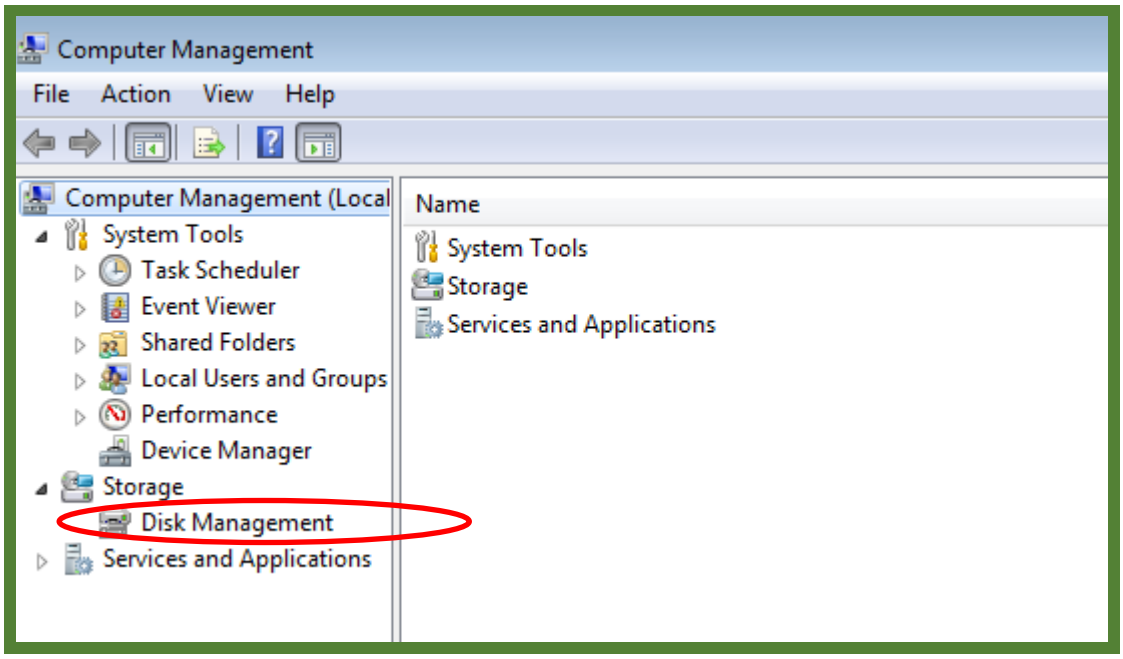
After all these have been done, we still need to log on to the virtual machine to activate the newly added virtual hard drive.

Start the virtual machine with newly added virtual hard drive. Click “Start”, “Control Panel”, “Administrative tools”, then “Computer management”:



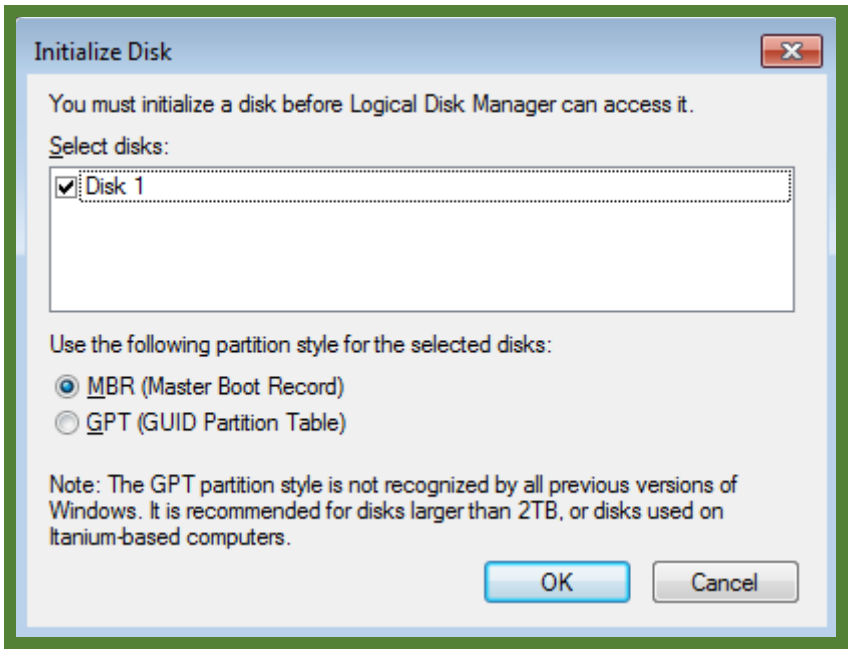

Picture 108

In the popup window, choose “Disk Management”:



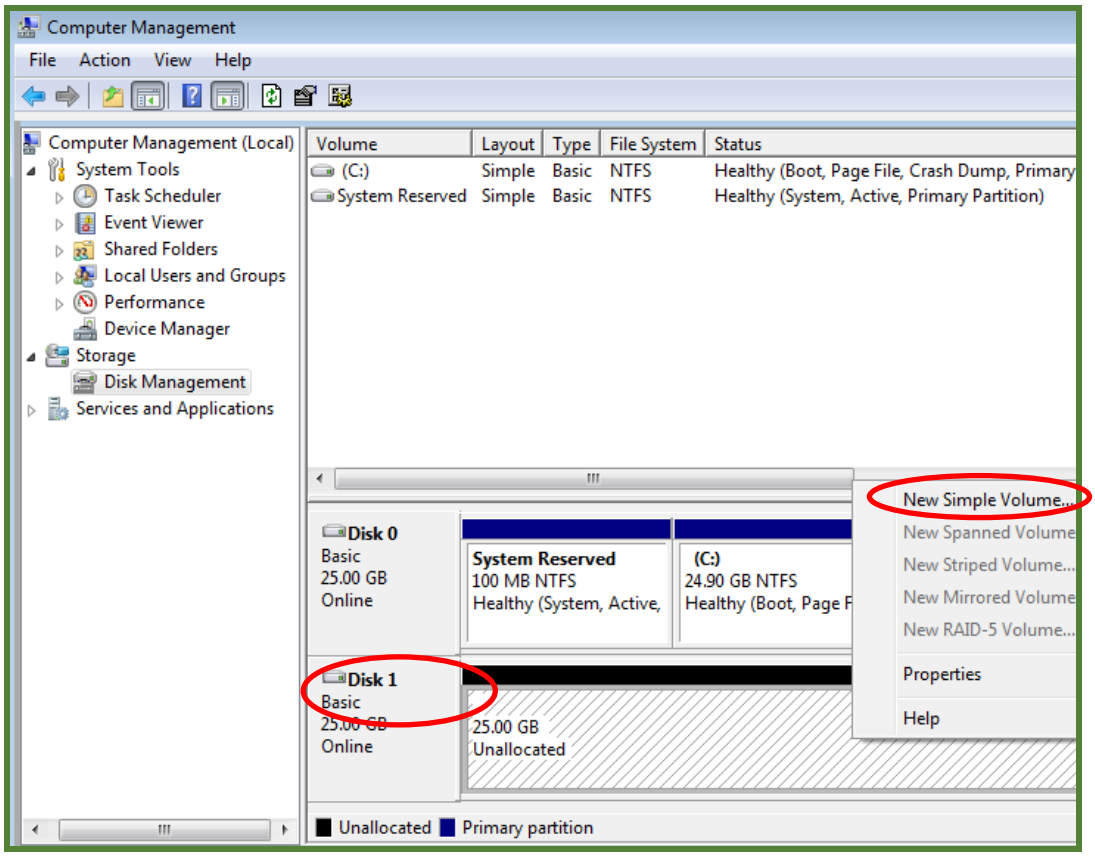

Picture 109

A window called “Initialize Disk” will pop up. Click “OK”. A new disk “Disk 1” will appear in the drive list. The status is “Unallocated”:


Initialize Disk
You must initialize a disk before Logical Disk Manager can access it.
Select disks:
Disk 1
Use the following partition style for the selected disks:
MBR (Master Boot Record)
GPT (GUID Partition Table)
Note: The GPT partition style is not recognized by all previous versions of Windows. It is recommended for disks larger than 2TB, or disks used on Itanium-based computers.
OK
Cancel

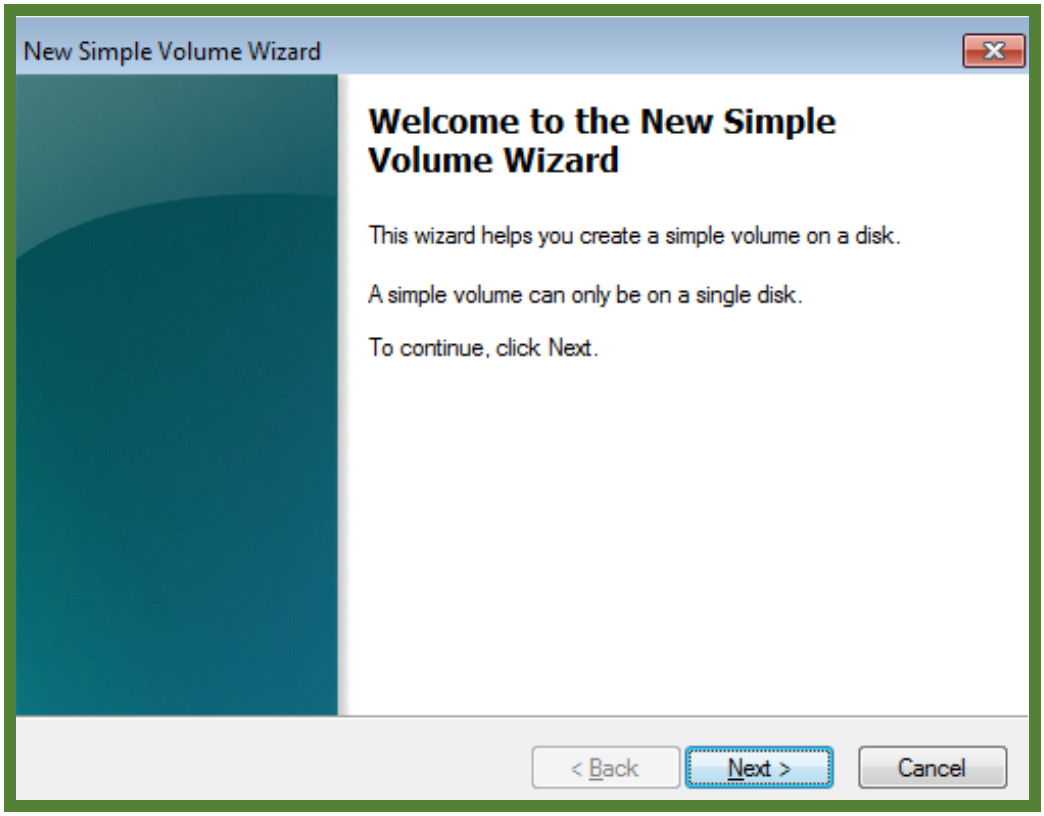
Picture 110

Right Click the Unallocated Disk and choose “New Simple Volume”:



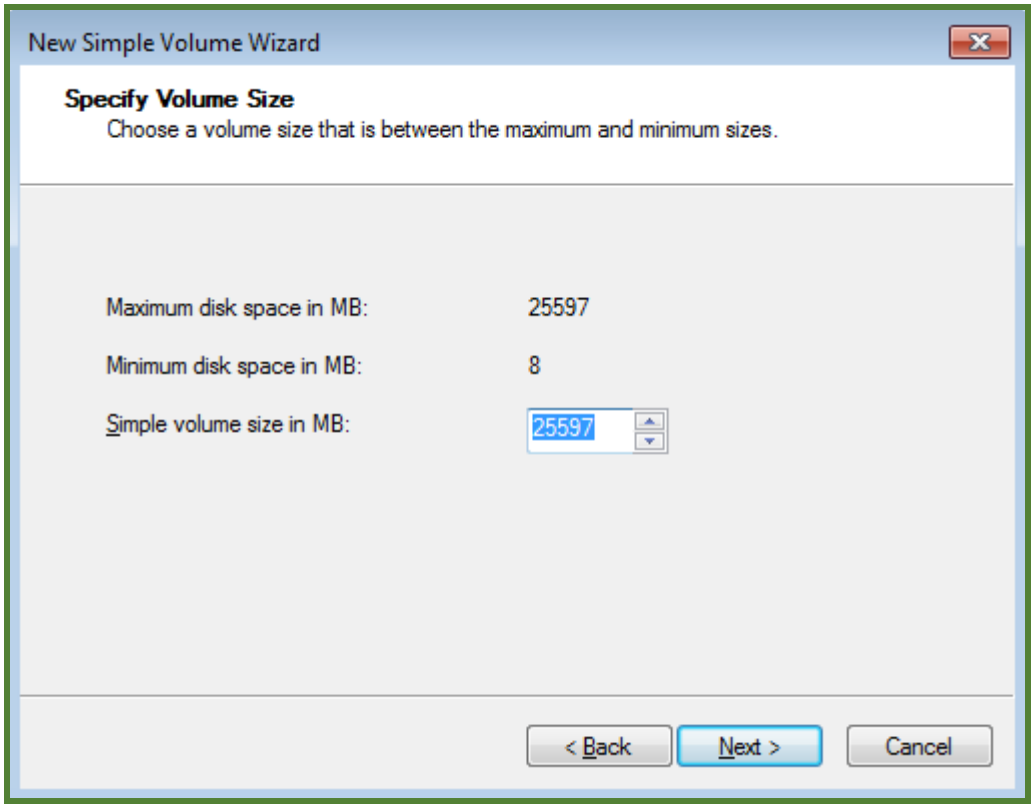

Picture 111

A new window called “New Simple Volume Wizard” will pop up. Click “Next”:


New Simple Volume Wizard
Welcome to the New Simple Volume Wizard
This wizard helps you create a simple volume on a disk.
A simple volume can only be on a single disk.
To continue, click Next.
< Back
Next >
Cancel

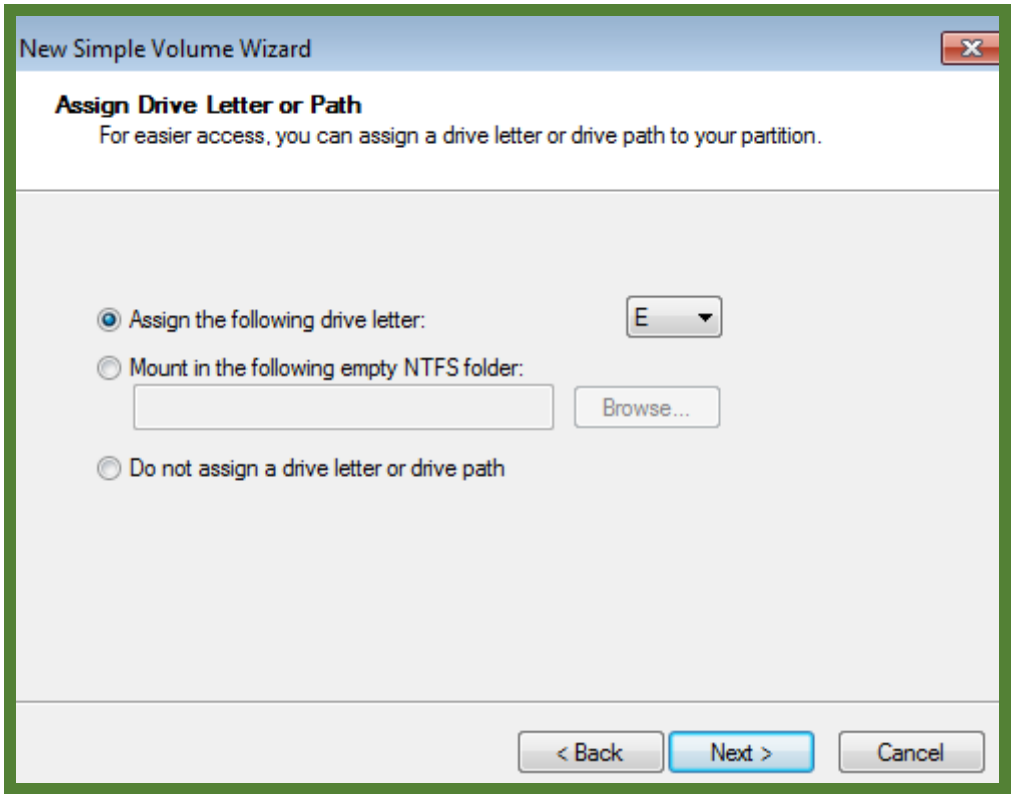
Picture 112

Choose a volume size, the default size is the total space of the disk. Then click “Next”:



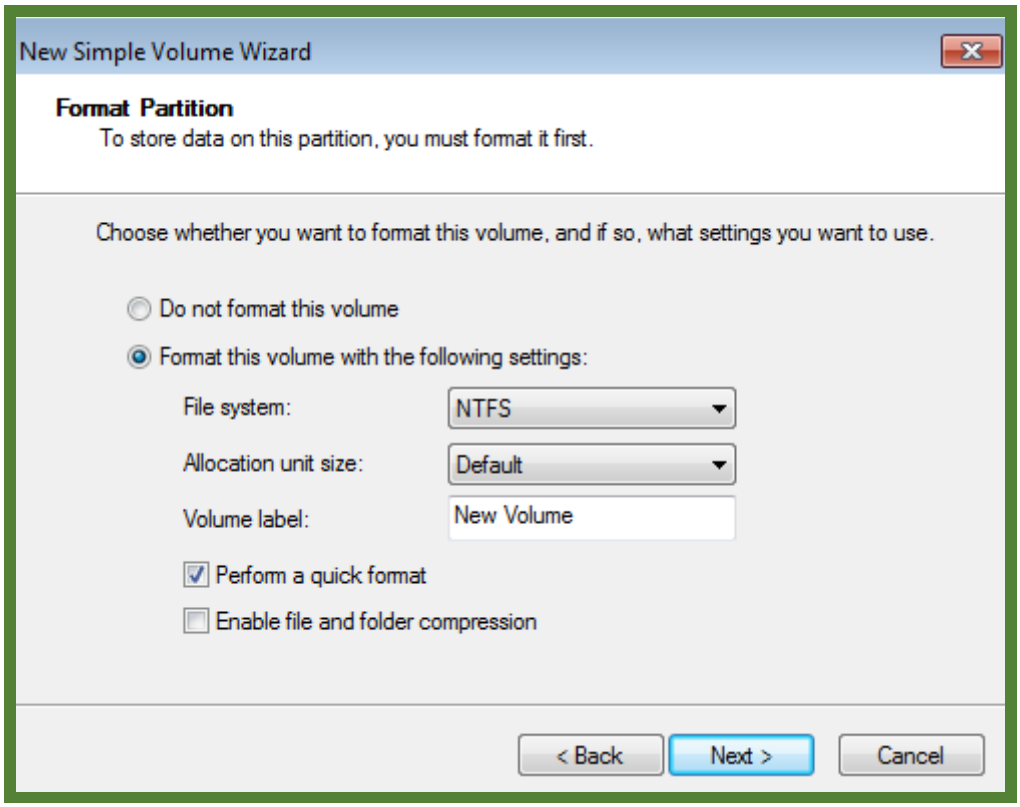

Picture 113

Assign a drive letter, then click “Next”:


New Simple Volume Wizard
Assign Drive Letter or Path
For easier access, you can assign a drive letter or drive path to your partition.
Assign the following drive letter:
E
Mount in the following empty NTFS folder:
Browse...
Do not assign a drive letter or drive path
< Back
Next >
Cancel

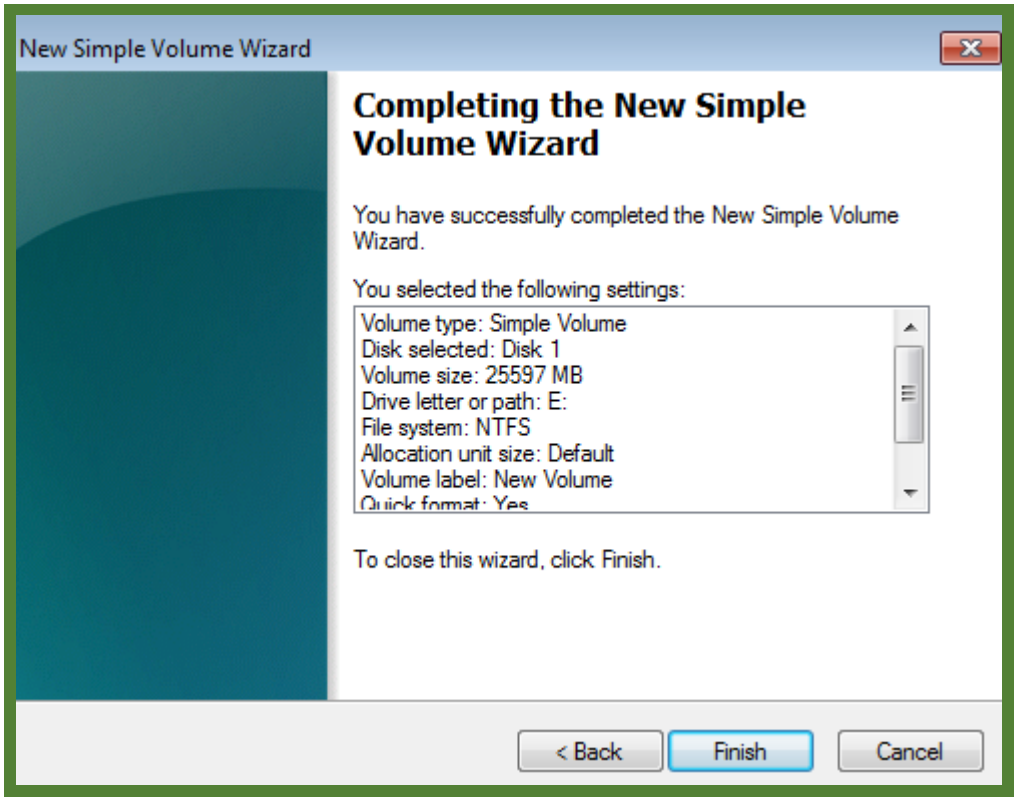
Picture 114

Select the setting to format this volume, click “Next”:


New Simple Volume Wizard
Format Partition
To store data on this partition, you must format it first.
Choose whether you want to format this volume, and if so, what settings you want to use.
Do not format this volume
Format this volume with the following settings:
File system:
NTFS
Allocation unit size:
Default
Volume label:
New Volume
Perform a quick format
Enable file and folder compression
< Back
Next >
Cancel

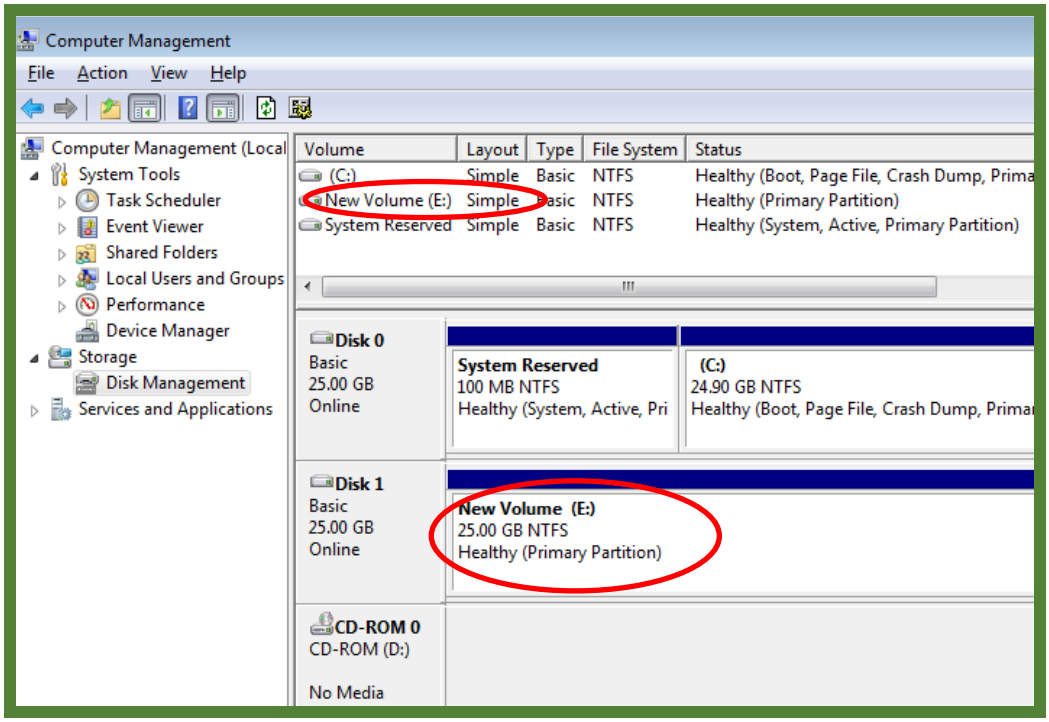
Picture 115

Click “Finish” to complete the wizard:


New Simple Volume Wizard
Completing the New Simple Volume Wizard
You have successfully completed the New Simple Volume Wizard.
You selected the following settings:
Volume type: Simple Volume
Disk selected: Disk 1
Volume size: 25597 MB
Drive letter or path: E:
File system: NTFS
Allocation unit size: Default
Volume label: New Volume
Quick format: Yes
To close this wizard, click Finish.
< Back
Finish
Cancel

Picture 116

You can see a “New Volume (E:)” is available now:



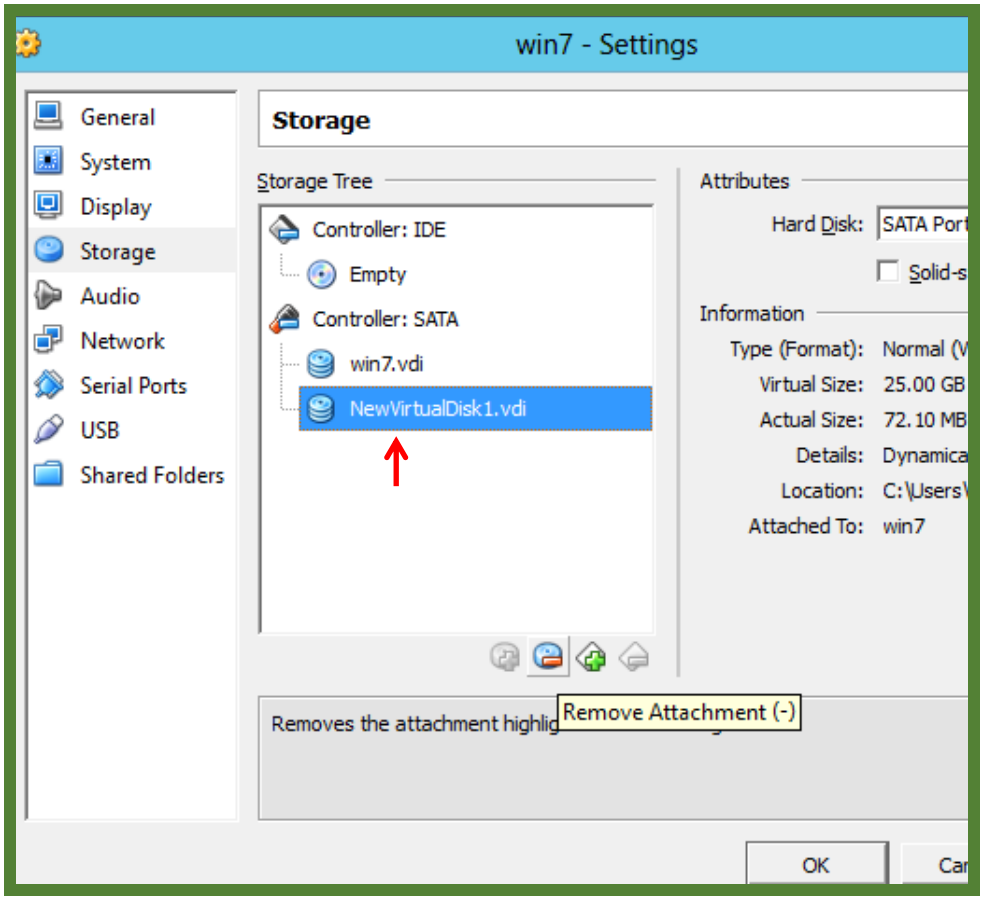

Picture 117

## 5.7 Take Snapshots and restore Snapshots of Virtual Machines

Operation Systems like Windows may suffer from various kinds of problems like system failure or virus affection. VirtualBox has a backup function called “Snapshot”. We can take a snapshot for the system when we have installed all the programs and have done all the configurations.

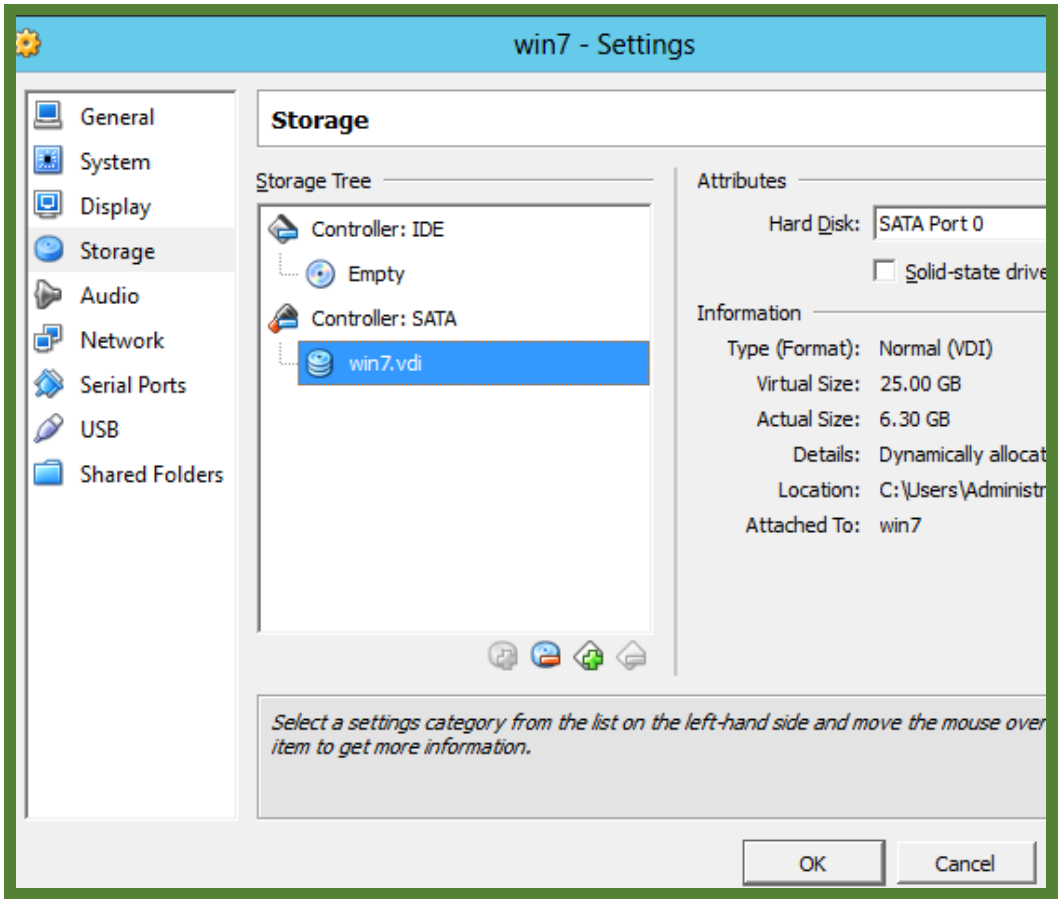
Since VirtualBox will take snapshot for the whole machines (including all hard drives), we need remove all theVirtual Drive except Drive C (system drive) before taking snapshot—we do not want the other drives with user data to be affected by the snapshot.

Go to the Settings of virtual machines, click on “Storage”, click to remove all the drives except the system drive “win7.vdi”:



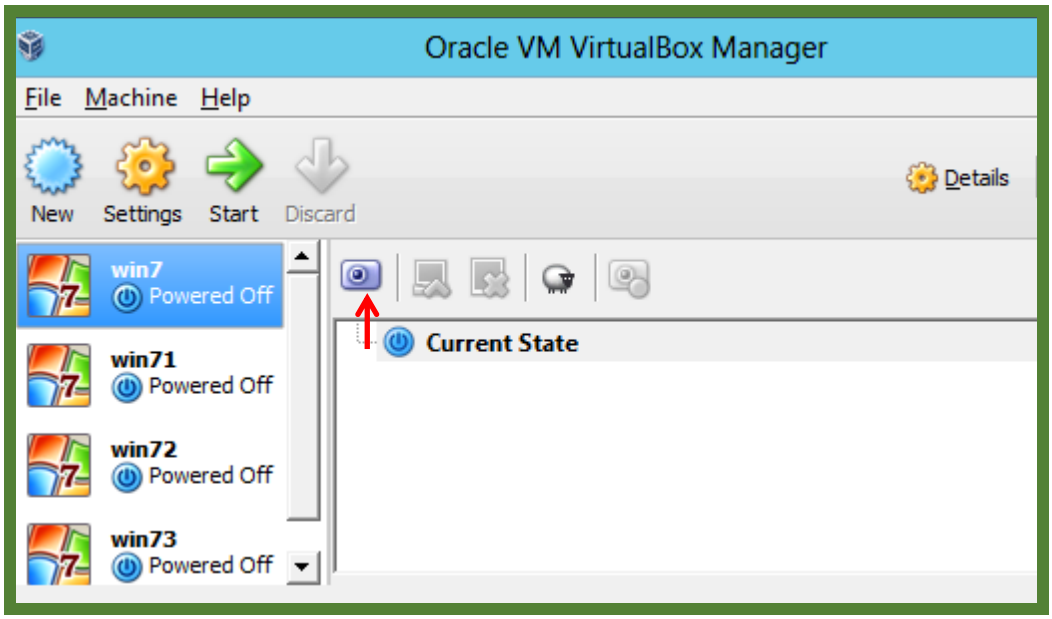

Picture 118

Leave the system drive “win7.vdi”, then click “OK”:



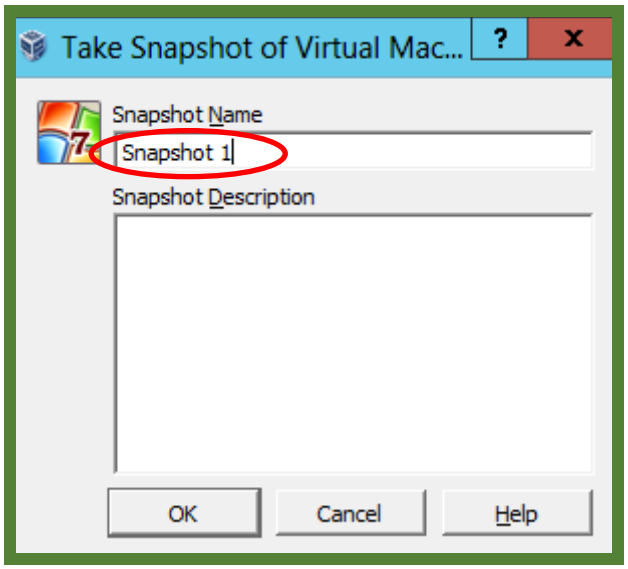

Picture 119

Then go back to VirtualBox Manager, choose the virtual machines that we are going to take snapshot of. Click on the “Camera” button:



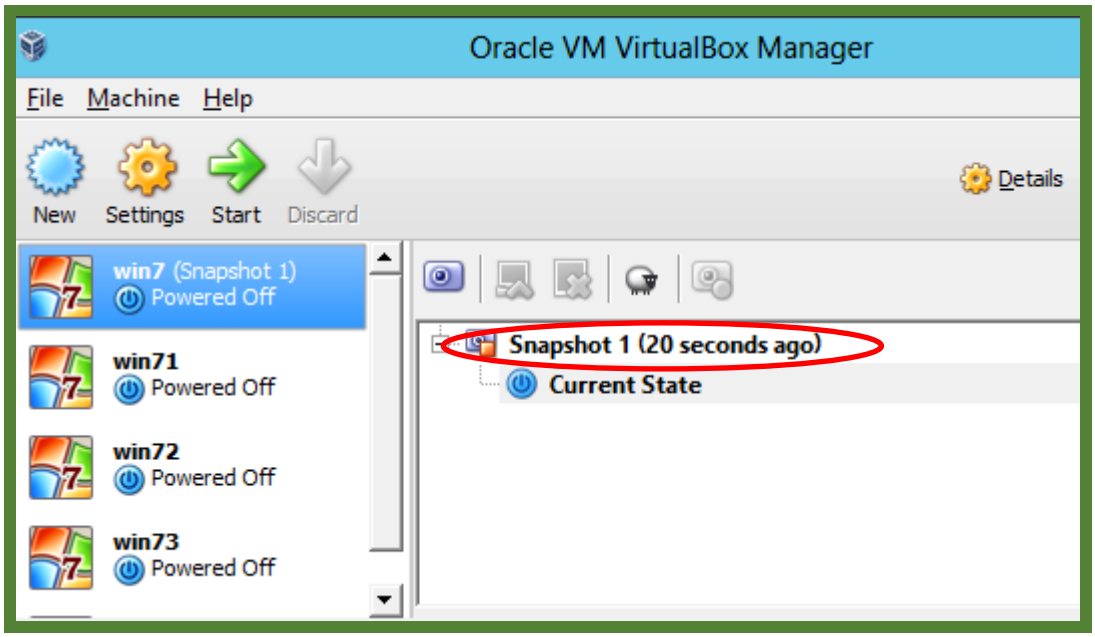

Picture 120

The popup window shows Snapshot Name and you can also input some words as Snapshot Description. Click “OK” to finish. Now you can see “Snapshot 1” in the list:




Picture 121

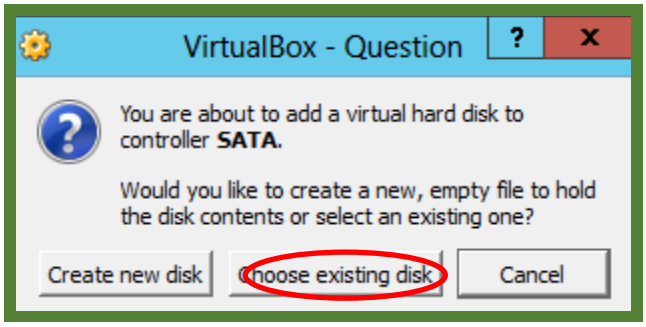
When you finish the setting, there is a snapshot available:




Picture 122

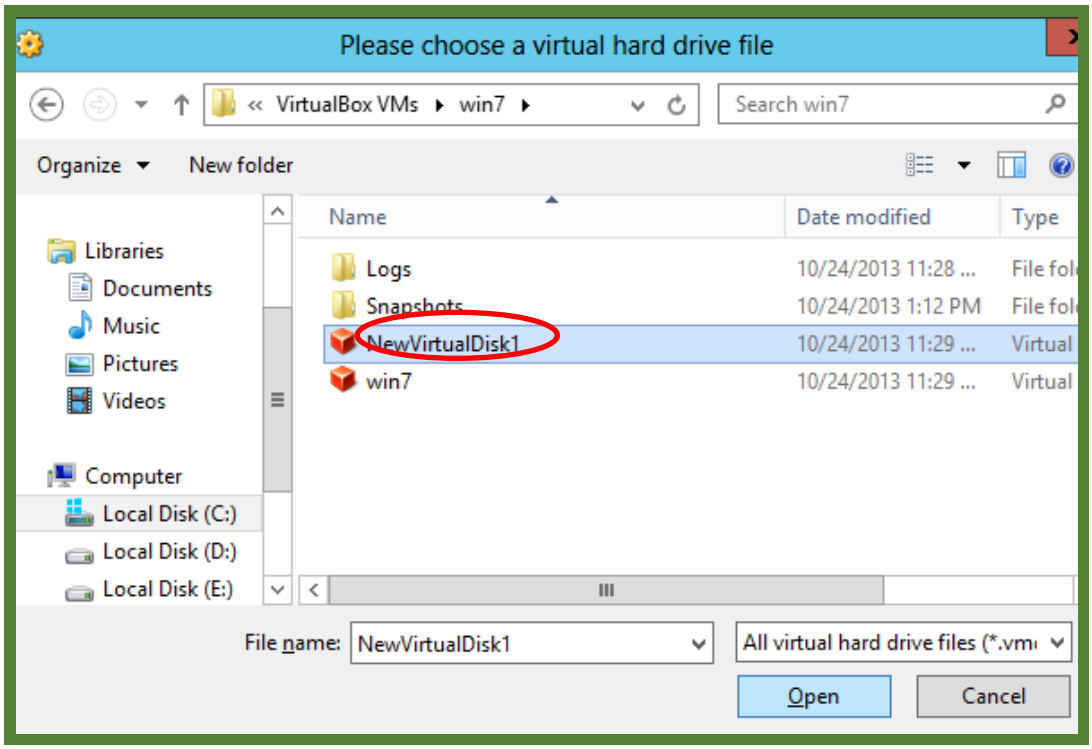
After the Snapshot is done, we need to add back the removed virtual drive.

Just like the way we add second drive (data drive) to the virtual machines, we need to go to the “Settings”, and then” Storage”. Here we need to click “Choose existing disk”:


VirtualBox - Question
You are about to add a virtual hard disk to controller SATA.
Would you like to create a new, empty file to hold the disk contents or select an existing one?
Create new disk
Choose existing disk
Cancel

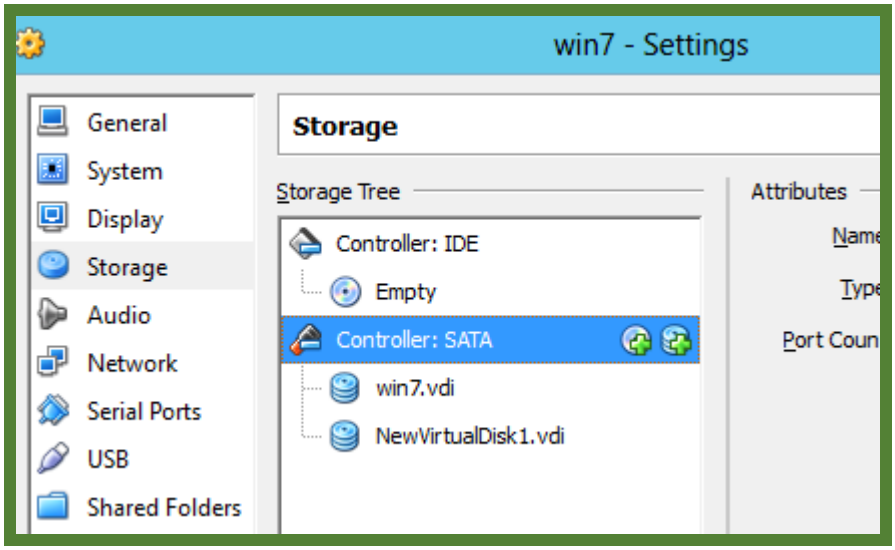
Picture 123

Go to the folder, and add the virtual drive we have removed earlier:



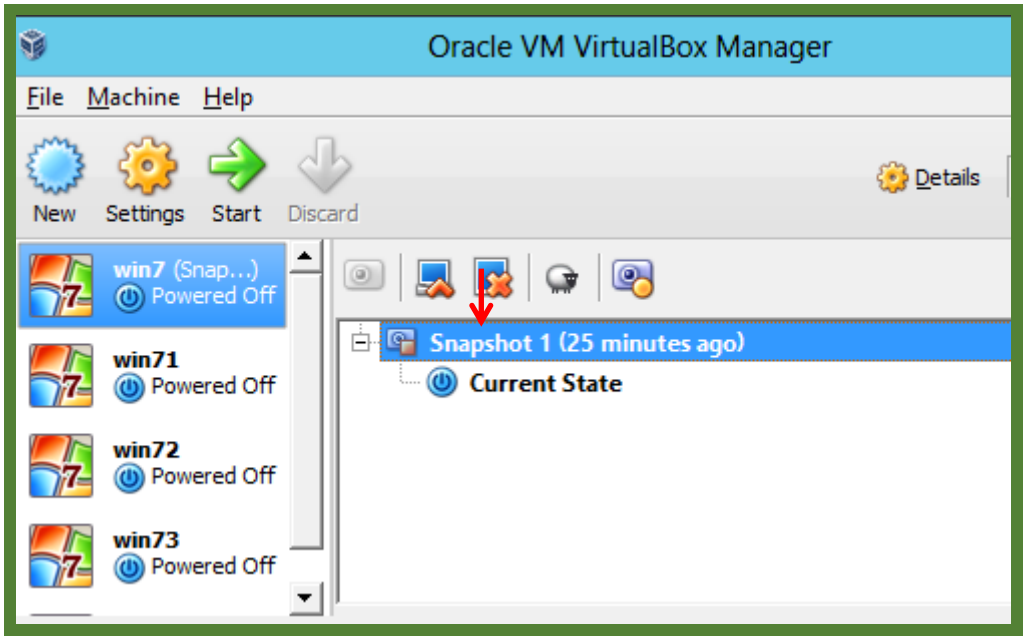

Picture 124

Now you can see the virtual drive is back:



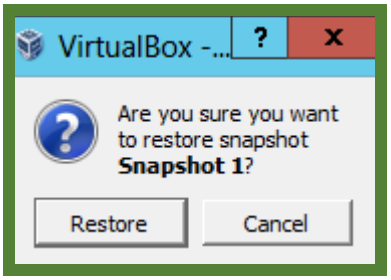

Picture 125

When the virtual machines suffer a system failure or corruption, we can click to restore the snapshot. Remember, a newly restored virtual machine is of settings without the second hard drive. So we need add back the second hard drive. Just follow the steps above to accomplish this.




Picture 126

In the window pop up, click Restore to start:




Picture 127

After a new seconds, the VM is set back to state when this snapshot was taken.